UNITED STATES OF AMERICA
before the
SECURITIES AND EXCHANGE COMMISSION

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In The Matter of the Application of:

SECURITIES INDUSTRY AND FINANCIAL MARKETS ASSOCIATION

for Review of Actions Taken by Self-Regulatory Organizations.

Admin. Proc. File No. 3-15350

The Honorable Brenda P. Murray,
Chief Administrative Law Judge

POST-HEARING BRIEF OF APPLICANT SECURITIES INDUSTRY AND FINANCIAL MARKETS ASSOCIATION

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INTRODUCTION

In *NetCoalition I*, the D.C. Circuit set aside the Commission's ArcaBook Order approving NYSE Arca's fees for its depth-of-book data product. *NetCoalition v. SEC*, 615 F.3d 535 (D.C. Cir. 2010). The D.C. Circuit found that the Commission, supported by NYSE Arca and Nasdaq (the Exchanges), had failed to show that significant competitive forces constrained NYSE Arca's fees. *Id.* at 539–44. Three years later, in *NetCoalition II*, the D.C. Circuit reaffirmed that "there must be evidence that competition will in fact constrain pricing for market data before the Commission approves a fee charged for market data premised on a competitive pricing model." *NetCoalition v. SEC*, 715 F.3d 342, 354 (D.C. Cir. 2013).

In its May 19, 2014 order (Referral Order), the Commission directed the Chief ALJ to hold an evidentiary hearing, giving the Exchanges yet another opportunity to try to substantiate their claims of competitive constraints. That hearing has now been held and, despite their best efforts to resuscitate the theories rejected by the D.C. Circuit for lack of support in *NetCoalition I*, the Exchanges did not and cannot carry their burden of showing that competition significantly constrains the pricing of their depth-of-book data products.

To the contrary, the evidence overwhelmingly shows that the Exchanges are *not* subject to significant competitive constraints and instead have significant market power over their depth-of-book data fees. Inside the courtroom the Exchanges claimed their depth-of-book data prices are subject to strict competitive discipline, but outside the courtroom Nasdaq's own executives have repeatedly told the investing public it "enjoy[s] relatively strong pricing power," SIFMA-298 at 2, because the market data business does not "experienc[e] pricing pressure." SIFMA-283 at 19. The evidence confirms that Nasdaq's executives were not misleading the public: the Exchanges' depth-of-book data fees are not, in fact, subject to competitive "pricing pressure."

First, the availability of alternative depth-of-book data products does not significantly constrain the Exchanges' fees. Rather, the undisputed evidence shows the almost complete lack of substitution in the face of significant price increases. When NYSE Arca raised its monthly professional subscriber fee from $0 to $30 in January 2009—a massive price increase compared to the 5%–10% price increase typically used to assess market power—it lost only [redacted] of its professional subscribers. Likewise, Nasdaq lost only [redacted] of its revenue after imposing a major price increase in 2012. The Exchanges' own data thus provide conclusive evidence that their customers do not have substitutes to which they can and do turn in the face of significant price increases. The Exchanges' evidence does not even address this dispositive issue, let alone show that the availability of substitutes significantly constrains their fees. *See infra*, Part I.

Second, competition for order flow does not significantly constrain the Exchanges' depth-of-book data fees. The Exchanges have not shown that their depth-of-book data fees significantly affect their order flow. Apart from NYSE Arca's patently unreliable "regression analysis," the Exchanges did not present any systematic data showing a relationship between their data fees and order flow, even though those data are in their exclusive possession. And between them, over a six-year period, they managed to identify only *one* anecdote in which a single customer ([redacted]) out of thousands diverted order flow in response to market data fees. Regardless, the Exchanges have not shown that competition for order flow leads to competitively priced depth-of-book data. To the contrary, both economic theory and the evidence show that competition for order flow leads to *higher* depth-of-book data fees. Indeed, the undisputed evidence shows that the Exchanges have repeatedly imposed "naked price increases" on the very algorithmic trading firms that they claim have leverage due to their order flow. The proof is in the pudding: even when [redacted] diverted order flow, Nasdaq did not lower its price. *See infra*, Part II.

Third, neither Exchange showed that its fees bear any relation to the cost of producing and distributing the data, as one would expect in a competitive market. Despite the D.C. Circuit's holding that cost is relevant to the competition analysis, NYSE Arca refused to provide any cost data. It claimed not to keep cost data even though it previously relied on "the costs of producing the data" in justifying its fees to the Commission. And Nasdaq produced evidence showing it has extremely high profit margins, which its executives frequently tout to investors as evidence that it has strong pricing power. The Exchanges claim these extraordinarily high profit margins are meaningless because they could be "wiped out" by reassigning the cost of trading rebates to the data business. But Nasdaq's internal records and SEC filings assign that cost to the trading business, and its theory that those costs hypothetically could be assigned to the data business fell apart when its Chief Financial Officer realized on the stand that Nasdaq's litigation theory was flatly inconsistent with its SEC-filed audited financial statements. In all events, reassigning the cost of the trading platform to market data is inconsistent with the Exchange Act, which requires market data to be reasonably priced to make the data widely available. *See infra*, Part III.

Finally, the Exchanges' fees should be set aside because they are inconsistent with the investor protection and transparency objectives of the Exchange Act. As Professor Donefer explained, high depth-of-book data fees increase trading costs, resulting in lower investment returns for millions of ordinary Americans who invest to save for retirement, college, or to buy a home. Tr. 998–1001. And the Exchanges' own evidence shows that their high fees severely limit retail investors' access to depth-of-book data, placing them at a significant informational disadvantage compared to high-frequency and other professional traders who can afford to buy depth-of-book data products from multiple exchanges. Under the Exchange Act, however, access to information is not a luxury good. *See infra*, Part IV.

FACTUAL BACKGROUND

This case concerns the fees that two national exchanges charge for their depth-of-book data products: NYSE Arca's ArcaBook and Nasdaq's TotalView, OpenView, and Level 2.[1] These products contain compilations of "limit orders," *i.e.*, offers to buy or sell a specified number of shares of a particular security at a particular price. Those limit orders, while they remain pending, represent the critical supply and demand for a given security at a given time. As explained below, access to that "liquidity" information is crucial to institutional investors, brokers, and others who execute large orders, and because each exchange has only a subset of the information, the only way to have a full view of the market is to buy depth-of-book data from multiple exchanges. Donefer ¶¶ 38–45, 59–61, 73; Donefer Tr. 816–17, 820–23, 1016.

A. Market Structure

The number of venues for trading U.S. equities has proliferated during the past two decades. Previously, almost all trades executed on one of two exchanges—NYSE and Nasdaq. Donefer ¶ 16. As late as 2007, NYSE and Nasdaq accounted for approximately 75% of trading volume. Hendershott & Nevo ¶ 50 & Ex. 2. Today, however, investors and traders may buy and sell equities on 11 public exchanges and over 50 alternative trading systems (ATSs), all of which are subject to Commission regulation. The share of trades executed on NYSE or Nasdaq has fallen by approximately 35% as the number of trades executed by BATS, Direct Edge, and ATSs has grown. *Id.* These venues compete intensely for the "order flow" submitted by investors and

[1] Nasdaq erroneously asserts that only Level 2 is at issue. Br. 36. Nasdaq does not and cannot dispute that buyers must pay the fees imposed pursuant to its rule change in order to access and distribute TotalView and OpenView. *See* 75 Fed. Reg. 57314 (Sept. 20, 2010). Nasdaq claims its rule change did not increase the fees it previously charged for TotalView and OpenView, but that is irrelevant. The rule change at issue reimposed and perpetuated those unreasonable fees, and they are properly the subject of SIFMA's challenge. *See* Referral Order 21 (consolidating "the challenge to the fees for NASDAQ's depth-of-book data *products*") (emphasis added).

their broker-dealers. Evans Tr. 1076. With more venues competing for traders' business, the cost of executing trades has fallen. Hendershott & Nevo ¶ 45. But most of these new venues do not provide depth-of-book data; only the public exchanges do. And the public exchanges are controlled almost entirely by only three corporate entities: the NYSE Group, Nasdaq, and BATS, each of which operates multiple exchanges. Donefer ¶ 16; Evans Tr. 1087.

The nature of the exchange business has also fundamentally changed through "demutualization." Before 2006, NYSE and Nasdaq were not-for-profit companies owned by their members—*i.e.*, the broker-dealers who place trades on the exchanges, including many SIFMA members. Brooks Tr. 85. This structure helped constrain market data fees because the member-owners who had a stake in setting fees were also the customers who paid them. But after NYSE and Nasdaq became publicly traded, for-profit companies, they served the interests of shareholders. *Id.* at 83, 85; Donefer ¶¶ 18–19. Thus, although ArcaBook had always been free, NYSE applied to begin charging for the product within months of NYSE acquiring Archipelago (through a reverse merger) and becoming a for-profit public company. NYSE-11.

This "evol[ution] from member-owned not-for-profit corporations into for-profit investor-owned corporations," Nasdaq has acknowledged, means the "exchanges no longer have narrow incentives to manage their affairs for the exclusive benefit of their members, but rather have incentives to ... grow revenue." SIFMA-57 at 3. That is precisely what happened with market data. As the Commission recognized at the time, the transformation of exchanges into for-profit entities with a duty to maximize profits for their shareholders called for more aggressive scrutiny to ensure fees remained reasonable. 64 Fed. Reg. 70613, 70629 (Dec. 17, 1999) ("The advent of for-profit [exchanges], who will have the financial objective of generating

profits for their owners, potentially could result in increased pressure to raise fees," requiring "increased oversight by the Commission"); *see also NetCoalition I*, 615 F.3d at 541 n.15.

Other regulatory and business considerations also affect traders' order-routing decisions and data needs. Most important is the broker-dealer's duty of "best execution." FINRA, which regulates its members, has codified this duty. Approved by the SEC effective in 2012, FINRA Rule 5310 requires broker-dealers to "use reasonable diligence to ascertain the best market for" a securities transaction "and buy or sell in such market so that the resultant price to the customer is as favorable as possible under prevailing market conditions." SIFMA-373 at 1, 3; SEC Rel. 34-65895. Among the factors determining whether that duty is met are "price, volatility, relative liquidity," and "the number of markets checked" before trading. *Id.* FINRA has made explicit the connection between depth-of-book data and best execution: its Head of Market Regulation recently announced at a compliance conference for broker-dealers that if a member is "not looking at depth-of-book type activity at other markets before [it] fill[s] a customer['s order], that's another area where we're going to start to focus a little bit more on" in assessing best execution. SIFMA-371 at 2, 17. Accordingly, broker-dealers may understandably feel they face significant regulatory risk if they do not use depth-of-book data. *See* Donefer Tr. 1055.[2]

Moreover, unlike in the usual arm's-length relationship between buyers and sellers, the exchanges are also the regulators of their broker-dealer members. As nationally registered exchanges, Nasdaq and NYSE Arca are self-regulatory organizations (SROs) with enforcement,

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[2] Relying on a statement by the Commission in the ArcaBook Order, the Exchanges contend that the duty of best execution does not require broker-dealers to use depth-of-book data. 73 Fed. Reg. at 74788. But that statement was made almost seven years ago, and "the scope of the duty of best execution has evolved over time with changes in technology and transformation of the structure of financial markets." *Newton v. Merrill, Lynch, Pierce, Fenner & Smith, Inc.*, 135 F.3d 266, 271 (3d Cir. 1998) (en banc). In addition, the Commission is not the only arbiter of best execution duties, which also arise from state agency law. *See id.* at 270; Donefer Tr. 985–86.

supervisory, and investigatory authority over their members. Brooks Tr. 83, 85; Albers Tr. 618; *see NetCoalition I*, 615 F.3d at 528. This too subjects broker-dealers to regulatory risk if they do not use depth-of-book data. Nasdaq's Head of Market Data and NYSE Arca's own fee filings acknowledge the use of depth-of-book data for trader "compliance" and "risk management." Albers Tr. 619; SIFMA-81. And NYSE Arca, in its role as SRO, has directed its members to cross-check customers' order instructions with "current price and depth of book in the market" to prevent erroneous order executions. SIFMA-41 (NYSE Arca Regulatory Bulletin).

Commercial reality also compels broker-dealers to obtain the best execution possible for their customers' orders. Investors expect that their brokers will execute their orders at the best possible price, because trading at worse prices means lower return on investment. For large and even moderately sized orders, broker-dealers cannot achieve best execution without using depth-of-book data, which allows them "to estimate the size of the queue in which new orders would arrive and the place in the queue of existing limit orders," and thus "to lower their price impact." Hendershott & Nevo ¶ 28(b). Clients closely monitor the price impact of their trades and, through a process called Transaction Cost Analysis, evaluate their execution quality. Donefer ¶ 67; Donefer Tr. 947, 1049. Brokers "who do not do well tend to get fired." Donefer Tr. 932.

Finally, under the Order Protection Rule of SEC Regulation NMS, exchanges must generally route orders to the venue with the best price. 17 C.F.R. § 242.611; Donefer ¶ 43. This means that an order directed to an exchange that does not have the NBBO will be redirected to the exchange with the best price. Brooks Tr. 24; Albers Tr. 641. The trader may incur an additional fee as a result. Donefer ¶ 74. Thus, a broker-dealer's ability to route orders is significantly limited by both regulatory and business considerations. Donefer ¶¶ 69–70; Donefer

Tr. 947–48, 1039–40, 1049–50; Albers Tr. 641 (agreeing that "[redacted]").

B. Market Data

The multiplication of trading venues and the growing role of technology and speed for traders today has greatly increased the importance of depth-of-book data. The CEO of NYSE Arca's parent company has explained that "whenever we've been in markets that are fragmented, the value of data goes up, because people want to be able to see as clearly as possible." SIFMA-244 at 12. Although not *all* traders need *all* depth-of-book data—and, contrary to the Exchanges' straw man argument, SIFMA has never claimed they do—this information is essential to many traders and useful to many more, as even the Exchanges now concede. *See infra*, 28.

Market data comes in two basic types: "core" and "non-core." *NetCoalition I*, 615 F.3d at 529.[3] "Core" or "consolidated" data is basic information that each exchange must provide to consolidators. It includes the price and size of the most recent trade, and the price and size of the current best bid and offer, for each security. Donefer ¶ 24. The latter is known as "top-of-book" data because it reflects only the best of the bids and offers for a security in an exchange's "book" of orders. Centralized consolidators, known as Securities Information Processors (SIP), aggregate the data, calculate the NBBO for each security, and disseminate the data to the public via the "SIP feeds." *Id.* The Commission regulates the price and means by which customers access SIP data, as well as the allocation of SIP revenue among the exchanges. *Id.*

The market data at issue in this proceeding, however, are not consolidated across exchanges, but rather unique to a specific exchange. Each exchange compiles bids and offers at prices inferior to the best bid and offer on the exchange for a particular security. *Id.* ¶ 14. The

[3] The terms "core" and "non-core" are SEC inventions; they do not appear in the Exchange Act.

broker-dealer members of the exchanges place these orders, and indeed are required by law to provide certain of their orders to exchanges at no cost. *See* 17 C.F.R. §§ 242.601(b), 242.602(b). The exchanges aggregate these limit orders and display them in real time to subscribers through their depth-of-book data products. Donefer ¶ 14; Brooks Tr. 22, 116.

Exchanges are the exclusive providers of their depth-of-book data products. Donefer ¶ 25. An exchange's depth-of-book data are entirely unique to that exchange and cannot be obtained from any other source—as one can see just by looking at depth-of-book data. *Id.* ¶¶ 26, 38–42, 72; Donefer Tr. 820–23 (discussing Professor Donefer's screenshots); Donefer App. A, Ex. 5 at 11 (showing depth-of-book data for Apple).[4] A limit order placed on Nasdaq, for example, exists only in Nasdaq's order book; unless it is the best bid or offer supplied to the SIP, it is available only through a Nasdaq depth-of-book data product. *See NetCoalition I*, 615 F.3d at 538 ("While many exchanges sell Google stock, only NYSE Arca offers access to the Google limit orders included in its depth-of-book product, ArcaBook."). Each of the major exchanges offers at least one depth product. Nasdaq's TotalView, NYSE Arca's ArcaBook, and NYSE's OpenBook are the flagship products that carry complete depth-of-book data for their exchanges.

Depth-of-book data products are essential to many traders for several reasons. *First*, they provide far more information than the consolidated SIP data. The best bid and offer from each exchange represents only the tip of the iceberg of the trading interest in the market at any given moment. Donefer ¶¶ 26, 39–40. The vast majority of the information regarding the supply and demand for a security is contained in the limit orders that make up the depth-of-book data. *Id.*

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[4] Unlike Professor Donefer—the only witness who brought depth-of-book data to the hearing—the Exchanges' experts did not even look at depth-of-book data in formulating their opinions. Hendershott Tr. 221–22; Nevo Tr. 325; Ordover Tr. 745–76. NYSE Arca argues that screenshots are useless because the data change rapidly, Br. 34, but if that were so, they would not be "viewed thousands of times a day by many different users." Donefer Tr. 976; *cf. infra*, 13 n.5.

¶ 26. Access to that information allows traders to observe "liquidity" for a security—how many shares are available at what prices—which guides traders in deciding whether and when to trade, at what price, and with what order type. *Id.* ¶ 62; Hendershott & Nevo ¶ 28.

Second, there is no place to get consolidated, market-wide depth-of-book data. Because each exchange makes up only a piece of the market for a particular security, traders must acquire the data from all major exchanges in order to have a complete view of the available liquidity in the market. By combining the complete order books from all major exchanges, a trader can "trace the demand curve ... for a given stock." Hendershott & Nevo ¶ 27; Hendershott Tr. 218. This is critical to trading effectively in large quantities because, "given a large sell order that exceeds the liquidity available at the top of the buy book, a trader can use depth-of-book data to estimate the liquidity available at lower prices to predict the weighted average price to execute the order." Hendershott & Nevo ¶ 28(a). Without depth-of-book data from all major exchanges, traders and investors cannot determine how much their trades will cost, whether that is the best possible price, and whether the trade will even execute. Donefer ¶ 73; Donefer Tr. 901.

Third, the "decimalization" of stock prices has diminished the number of shares available at the top of the book and therefore diminished the value of the consolidated SIP data to traders. This has enhanced the importance of the limit orders below the top-of-book prices. Before 2001, shares traded in increments of 12.5 cents, and on average, more than 11,000 shares were available at the NBBO. SIFMA-43; Donefer ¶ 46. After the SEC ordered that shares trade at a separate price point for every cent, the number of shares available at the best price point fell. Donefer ¶ 46; *see NetCoalition I*, 615 F.3d at 530 n.7 ("decimalized trading ... substantially decreased the depth at the best prices and substantially increased the depth at the various one-cent price points inferior to the best prices"). Today, stocks average fewer than 500 shares

available at the NBBO—a drop of more than 95%. Donefer ¶ 46. As the SIP's usefulness has declined, depth-of-book data have become correspondingly more important. *Id.*

Fourth, TotalView and ArcaBook are the exclusive low-latency sources of Nasdaq's and NYSE Arca's "order imbalance" information that is used to participate in the Exchanges' auctions held at the beginning and end of each trading day. *Id.* ¶¶ 55–58. Order imbalance data are, as Nasdaq describes, "imperative" to many market participants whose trading strategies include participating in the Exchanges' daily open and close auctions. SIFMA-199. Leading up to the auctions, exchanges publish any "imbalances" between the buy and sell orders that have been submitted for the auctions. Market participants with access to the imbalance data can take advantage of the imbalance between buyers and sellers by placing "Imbalance Only" orders that are particularly valuable because they allow trades to execute without affecting the prevailing market price. A growing share of all trading occurs in the daily auctions, which are a key part of the strategy of many market participants, including mutual funds whose asset value is based on the closing prices of the funds they hold. Donefer ¶¶ 55–58, 65; Donefer Tr. 834. ArcaBook and TotalView are the exclusive low-latency source of imbalance information for the Exchanges' auctions, whose rules and offerings are unique to each Exchange. Donefer ¶¶ 55, 57.

Finally, many market participants need the depth-of-book data products at issue because of the speed at which the information is electronically delivered to customers. *Id.* ¶¶ 51–54, 64. The Exchanges' proprietary feeds are significantly faster than the SIP feeds. *Id.* NYSE Arca markets ArcaBook as being "at least 60 times faster" than the SIP feed. SIFMA-110. In today's fast-paced financial markets, data may be obsolete within microseconds: a bid or offer appearing on the SIP feed may already have been bought or sold by a trader with access to TotalView or ArcaBook. *See* SIFMA-210 (Hendershott study demonstrating that the time lag between the SIPs

and the proprietary feeds is long enough for a trader to execute *five* trades). As NYSE Arca's own expert has explained, "traders are at a substantial disadvantage if they use the public [SIP] data" rather than the faster depth-of-book feeds. *Id.* Speed is particularly important to certain "high-frequency" traders whose strategies depend on identifying market opportunities and being first in line to get the best available price. Donefer ¶ 61. And the presence of these high-frequency traders in the market raises the stakes for everyone. *Id.* ¶¶ 50, 64; Donefer Tr. 1056–57 ("It's a race.... If you don't have the information and the resources of the others, you're not going to win that race. You're going to lose money."); *see also* Donefer Tr. 1057 (identifying market participants who "need the speed of the information," such as a "pension fund, hedge fund, ... [m]utual fund, endowment, [or] money managers that [a]re working for them").

As a result, many market participants cannot operate successfully without the depth-of-book data from all major exchanges, and certainly from Nasdaq and NYSE Arca. Donefer ¶¶ 59–61, 66–68, 73; *see* Shavel Tr. 1344 (depth-of-book data are "crucial for a category of traders" including "large banks, sophisticated market makers, algorithmic traders"); SIFMA-133 at 5 (Nasdaq internal analysis identifying "[redacted]") (emphasis added). The Exchanges are keenly aware of traders' and investors' need for their depth-of-book data and their inability to obtain it anywhere else. As Nasdaq's CFO Lee Shavel put it: "because the data is unique to NASDAQ ... markets, it's highly differentiated from competitor offerings and we enjoy relatively strong pricing power." SIFMA-298 at 2; *see* SIFMA-302 at 4 (Mr. Shavel explaining that Nasdaq has "distinct and crucial data about Nasdaq marketplaces that is not interchangeable with other exchanges' market data").

C. Depth-of-Book Data Fees

Since becoming public companies, the Exchanges' depth-of-book data fees have continued to increase and proliferate. The Exchanges have both raised existing fees and created

entirely new fees for existing users. Donefer ¶ 29 & App. A. The Exchanges nevertheless have experienced very little customer attrition. *See infra,* Part I. They generate considerable revenue and substantial profit margins from the fees at issue in this proceeding. Donefer ¶¶ 33–34.

Since the time the Dodd-Frank Act allowed exchanges to file fees for immediate effectiveness, the Exchanges have filed a flurry of new and increased fees. Nasdaq now has five different types of usage fees, five distributor fees, and five enterprise license fees. SIFMA-202. Nasdaq's internal documents show that its fees result from an "opportunistic strategy" of imposing "naked price increases," NQ-526, *i.e.*, "changing the price" without "giving [customers] any additional content, any additional flexibility in terms of their use." Albers Tr. 604–05. The most significant of these price increases occurred in April 2012, when Nasdaq created a new $300 monthly subscriber fee for nondisplay usage that was previously covered by its $70 monthly professional display fee, and more than doubled the cap for nondisplay usage from $30,000 to $75,000. SIFMA-71.[5] Nasdaq's revisionist "history of price decreases and consistently low fees," Br. 28, is utterly at odds with this record of new and expanded fees.[6]

The history of fee increases for NYSE Arca is similar: its fees rise and proliferate, its revenue goes up, but its customers do not leave. Before 2009, NYSE Arca provided ArcaBook at no cost to its subscribers. Shortly after becoming a public company, NYSE Arca imposed fees for direct access and professional and nonprofessional device users. NYSE-11. Mimicking

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[5] "Nondisplay usage" occurs when the data are used by a computer, for example in algorithmic trading or smart-order routing. This is in contrast to "display" usage, when a customer views the data on a screen. Before the Exchanges imposed separate nondisplay fees, both kinds of usage were covered by the Exchanges' professional subscriber fees. Brooks Tr. 43; Albers Tr. 463–64.

[6] *See also* SIFMA-61 (new Managed Data Solutions fees); SIFMA-69 (new Enhanced Display Distributor fees); SIFMA-75 (new Hardware-Based Delivery fees, described by Mr. Albers as "a new product" with "the same content," Tr. 468); SIFMA-74 (increased cap on distribution to nonprofessionals); SIFMA-97 (doubling minimum Enhanced Display Solutions fee).

Nasdaq's strategy of "naked price increases," NYSE Arca then increased ArcaBook fees five separate times in just the two years before this hearing:

- In April 2013, it established new fees for nondisplay usage, managed nondisplay usage, and redistribution. SIFMA-81.
- In February 2014, it more than doubled the ArcaBook access fee and increased professional subscribers fees by 33%. SIFMA-83.
- In July 2014, it doubled the fee cap for nonprofessional subscribers from $20,000 to $40,000. SIFMA-86.
- In September 2014, it increased the nondisplay and managed nondisplay fees by 20%, while also expanding the definition of "nondisplay" to capture additional uses. SIFMA-93.
- In January 2015, it created an additional fee for nondisplay access through a distributor. SIFMA-102.

These fee increases [redacted]. SIFMA-104AA. They also imposed substantial additional costs on the broker-dealers and other traders who have no choice but to pay them. SIFMA-380 (Broker-Dealer A). These fees can [redacted]. Donefer Ex. 4.[7]

Depth-of-book data fees are extremely lucrative for the Exchanges. SIFMA-242 at 21 (NYSE's market data business is "fabulous"—"growing and doing really well"); Albers Tr. 388 ("it's a key revenue driver"). They generate substantial revenues at very low costs. Nasdaq earns $92 million per year in depth-of-book data revenue. Albers Tr. 478. But it only "spend[s] about $2 million a year in terms of funding R&D and enhancements," and "roughly a million dollars a year" on advertising. *Id.* at 392, 419. NYSE Arca has refused to produce its own cost and margin data, but there is no reason to believe its costs are substantially different from Nasdaq's.

[7] Nasdaq mystifyingly claims that large banks pay only "a few hundred or a few thousand dollars per month for this data." Br. 7. But its own records show that its [redacted] customers paid between [redacted] for TotalView and OpenView *in just one month* (July 2014). SIFMA-133 at 14. Nasdaq misleadingly suggests [redacted] pays "[redacted]," Br. 7, 35, but in fact [redacted] pays about [redacted] per month for TotalView and OpenView. Shavel Tr. 1361–62; NQ-617.

The result is an exceptionally profitable product with extraordinary margins. In 2014 alone, TotalView generated [redacted] in revenues against [redacted] in allocated expenses—[redacted] profit margin. SIFMA-142. In earnings presentations, Nasdaq routinely touts the "strong performance" of its market data products, SIFMA-311, referring to this business as Nasdaq's "shining star." SIFMA-314. Nasdaq's CEO Robert Greifeld has readily agreed that he "wouldn't say that business experiences pricing pressure. We run it at a high margin." SIFMA-283 at 19.

LEGAL STANDARD

The Commission directed the Chief ALJ to "hold a hearing addressing whether the challenged rules should be vacated under the statutory standard set forth in Exchange Act Section 19(f)—as informed by the two-part test set out in [the Commission's] 2008 ArcaBook Approval Order [and] the D.C. Circuit's decision in *NetCoalition I*." Referral Order 20. Under Section 19(f), the Exchanges bear the burden of proving, among other things, that their depth-of-book data fees are "consistent with the purposes of [the Exchange Act]." 15 U.S.C. § 78s(f). As the Commission represented to the D.C. Circuit in *NetCoalition II*, "the section 19(f) standard is identical to that applied both in *NetCoalition I* and in ordinary approval proceedings under section 19(b)(2)(C)," 715 F.3d at 352, which requires the Commission to find that the fees are "consistent with the requirements of [the Exchange Act]." 15 U.S.C. § 78s(b)(2)(C)(i).[8]

One of the Exchange Act's express purposes is to assure "the availability to brokers, dealers, and investors of information with respect to quotations for and transactions in securities," *i.e.*, market data. 15 U.S.C. § 78k-1(a)(1)(C). "To ensure the wide availability and

[8] The Exchanges wrongly assert that the question in this proceeding is whether SIFMA's members were "denied access" to the Exchanges' depth-of-book data products. NYSE Br. 44; Nasdaq Br. 34–36. As the Commission has already made clear, Section 19(d) applies to *limitations* as well as *denials* of access, and a depth-of-book data purchaser who pays a fee that does not comply with Section 19(f) is subject to an unlawful limitation of access. Referral Order 12–13 ("there is no need to establish a complete prohibition of access").

equitable dissemination of market data, section 11A requires exclusive processors of proprietary market data such as [the Exchanges] to distribute that data on terms that are 'fair and reasonable' and 'not unreasonably discriminatory.'" *NetCoalition II*, 715 F.3d at 345 (internal citation omitted) (citing 15 U.S.C. § 78k-1(c)(1)(C), (D)). In addition, "Section 6 of the Exchange Act requires that the rules of national securities exchanges, *inter alia*, 'provide for the equitable allocation of reasonable dues, fees, and other charges among its members and issuers and other persons using its facilities'; 'promote just and equitable principles of trade'; and do not 'permit unfair discrimination between customers, issuers, brokers, or dealers' or 'impose any burden on competition that is not necessary or appropriate in furtherance of the purposes of' the Exchange Act." *Id.* (citing 15 U.S.C. § 78f(b)(4), (5), (8)); *see also NetCoalition I*, 615 F.3d at 528, 538.

In the ArcaBook Order, the Commission adopted a "market-based approach" to determining whether an exchange's depth-of-book data fees comply with the Exchange Act. 73 Fed. Reg. 74770 (Dec. 9, 2008). Under this approach, the Commission first "ask[s] whether the exchange was subject to significant competitive forces in setting the terms of its proposal for non-core data, including the level of any fees." *Id.* at 74781. If so, "the Commission will approve the proposal unless it determines that there is a substantial countervailing basis to find that the terms nevertheless fail to meet an applicable requirement of the Exchange Act." *Id.*[9] "If, however, the exchange was not subject to significant competitive forces in setting the terms of a proposal for non-core data, the Commission will require the exchange to provide a substantial

[9] NYSE Arca asserts, without argument or authority, that it is SIFMA's burden to prove a substantial countervailing basis for finding that the Exchanges' fees fail to comply with the Exchange Act. Br. 38–39. But as the Commission explained in its Referral Order, "Section 19(f) places the burden on [the Exchange] to establish, among other things, that its challenged rule is 'consistent with the purposes of' the Exchange Act." Referral Order 15 n.88. Therefore, the burden is on the Exchanges to prove that their fees comply with the Exchange Act, not on SIFMA to prove that the fees fail to comply with the Exchange Act.

basis, other than competitive forces, in its proposed rule change demonstrating that the terms of the proposal are equitable, fair, reasonable, and not unreasonably discriminatory." *Id.*

In *NetCoalition I*, the D.C. Circuit held that the Exchange Act permits the Commission's "market-based approach to evaluating whether [an exchange's] non-core data fees are 'fair and reasonable.'" 615 F.3d at 535. But the court held that the Commission had erred in approving the ArcaBook fees because its order did not reveal a reasoned basis or substantial evidence to support the conclusion that NYSE Arca was subject to significant competitive forces in setting its fees for ArcaBook. *Id.* at 539–44. The court held that the Commission had failed to show that either the availability of alternatives or competition for order flow prevented NYSE Arca from exercising significant market power over its depth-of-book data fees. *Id.*

ARGUMENT

I. The Availability Of Alternatives Does Not Significantly Constrain The Exchanges' Depth-of-Book Data Fees.

The central question in assessing market power is whether customers can and do substitute alternative products in response to price increases. Phillip E. Areeda & Herbert Hovenkamp, *Antitrust Law* §§ 506–507 (3d ed. 2007) (Areeda); Evans Tr. 1069, 1175. As the D.C. Circuit explained in *NetCoalition I*, "[t]he inquiry into whether a market for a product is competitive ... focuses on the customer and, in particular, his price sensitivity—in economic terms, the product's 'elasticity of demand,'" *i.e.*, "'the rate at which customers will turn away from the firm's product in response to a price increase or toward it in response to a price decrease.'" 615 F.3d at 542. In other words, the inquiry focuses on whether, in response to a significant increase in price, enough customers accounting for enough revenue will stop buying the product and thereby "defeat" (*i.e.*, render unprofitable) the price increase. *See id.*; Evans Tr.

1136–37, 1294–95.[10] The court in *NetCoalition I* found that the record lacked sufficient "evidence of trader behavior" on this dispositive issue, because it did "not reveal the number of potential users of the data or how they might react to a change in price." 615 F.3d at 542–43.[11]

Remarkably, despite the D.C. Circuit's call for evidence of how traders respond to changes in price, neither Exchange's economist analyzed that issue, even though only the Exchanges possess these data in systematic form. Evans Tr. 1069, 1099–1100, 1167–68, 1284–85. But unlike in *NetCoalition I*, here the record does contain data on how customers react to price changes. The data reported (but not analyzed) by the Exchanges' own economists shows that very few customers switch to another product, or stop buying, in response to significant price increases. *Id.* at 1134–35. Indeed, although they agreed on little else, all three economists in this case agreed that the demand for the Exchanges' depth-of-book data products is inelastic. Nevo Tr. 310; Ordover Tr. 753; Evans ¶ 39. These undisputed facts refute the Exchanges' claim that the availability of alternatives significantly constrains their fees, and instead "provide powerful evidence that there is significant market power." Evans Tr. 1124; *see* Areeda § 507.

A. The Exchanges' own data show the almost complete lack of substitution in response to significant depth-of-book data price increases.

The most reliable way to assess whether substitution constrains prices is to observe what customers do in the marketplace when prices increase. *See, e.g., Eastman Kodak Co. v. Image Tech. Servs., Inc.*, 504 U.S. 451, 473 (1992) (looking to "the actual market behavior revealed in

[10] This test is regularly used by courts, economists, and antitrust regulators to assess whether substitution constrains prices and prevents the exercise of significant market power. *See, e.g., FTC v. Whole Foods Mkt., Inc.*, 548 F.3d 1028, 1038 (D.C. Cir. 2008); *FTC v. H.J. Heinz Co.*, 246 F.3d 708, 718 (D.C. Cir. 2001); DOJ & FTC, *Horizontal Merger Guidelines* § 4.1.2 (2010).

[11] NYSE Arca criticizes SIFMA for not calling members to testify regarding "trader behavior," by which NYSE Arca means "how SIFMA members use depth data or why they purchase or stop purchasing particular depth products NYSE." Br. 32. But that is not what the D.C. Circuit meant by "trader behavior." Rather, the D.C. Circuit called for evidence indicating whether significant numbers of traders switch or stop buying in response to price increases. 615 F.3d at 542–44.

the record"); Evans Tr. 1098 ("You look for experiments and data that has been generated by the market."); *id.* at 1284 (market behavior "provides the most credible and powerful evidence"). Such data were not part of the record earlier in this dispute. *NetCoalition I*, 615 F.3d at 542 ("The SEC's analysis of alternatives does not reveal the number of potential users of the data or how they might react to a change in price."). But the dispositive data have now been provided: the Exchanges' own data show how their customers have responded to significant price increases, and no elaborate econometric analysis is required to understand that almost no customers left. These data are "the gold standard of evidence for evaluating whether there is significant market power." Evans Tr. 1094, 1110. And they show that the [redacted] of the Exchanges' depth-of-book data customers do not switch or stop buying in the face of [redacted] price increases. Nevo Tr. 359; Evans Tr. 1066–67, 1109–10, 1135; *see also* Brooks Tr. 150.

1. ArcaBook was free until 2009. In January of that year, NYSE Arca imposed a massive fee increase: nonprofessional device users would pay $10/month, professional users $30/month, and data-feed users $750/month. Because broker-dealers and other market participants often have many users, the total fees paid by a single institution are usually a multiple of these fees. And the change was enormous in relative terms. Economists normally consider a price increase of 5%–10% in assessing competitive constraints. *Horizontal Merger Guidelines* § 4.1.2; Evans ¶ 38; Evans Tr. 1243–44. The 2009 ArcaBook increases were approximately 900%, 2900%, and 74,900%. Evans ¶ 38.[12] Moreover, changing from zero to a positive price is a significant pricing event in response to which one would expect to see a substantial drop-off in demand if customers could readily switch or stop buying. Evans Tr. 1218–19. Even NYSE Arca's experts agreed that "the January 2009 event was a significant price increase." Hendershott & Nevo ¶ 66.

[12] This assumes the previous price was $1. An increase from $0 is infinite. Evans ¶ 38 & n.40.

Yet [redacted] ArcaBook customers stopped subscribing. The number of professional subscribers decreased by less than [redacted], from [redacted], and the number of accounts fell by only about [redacted], from [redacted]. Hendershott & Nevo ¶ 74. "That indicates that most of the subscribers who obtained ArcaBook could not find substitutes in the face of this massive price increase and decided to continue purchasing ArcaBook." Evans ¶ 39; *see* Nevo Tr. 359. "The lack of substitution is inconsistent with NYSE Arca being constrained by competitive forces, and therefore, it is consistent with there being significant market power, and therefore, the ability to raise prices significantly above the competitive market." Evans Tr. 1220; *see id.* at 1287 ("[redacted]").

Although NYSE Arca's own experts relied upon the [redacted] subscriber and account losses described above to argue that the demand for ArcaBook is inelastic, Hendershott & Nevo ¶ 74, NYSE Arca persists in claiming its account loss was "'[redacted].'" Br. 7–8. It does so even after it was pointed out in open court that this was misleading. Evans Tr. 1288–91. NYSE Arca continues to cite an exhibit it submitted to the Commission showing that the number of accounts declined by 23% (from 220 to 170), in contrast to the [redacted] actual account loss (from [redacted]). NYSE-1, Ex. 3B. This figure is irrelevant and misleading, as it reflects only the tiny fraction of customers that took the data feed directly from NYSE Arca and ignores the vast majority of customers that took ArcaBook through a redistributor such as Bloomberg. Evans Tr. 1247–51, 1288–91.[13] NYSE Arca's figures thus paint a misleading picture by suggesting that NYSE Arca lost a much greater number and percentage of its accounts than it in fact did.[14]

[13] Mr. Brooks claimed to "pay more attention" to the direct accounts. Tr. 90. But he admitted that he does not distinguish between direct and indirect subscribers because NYSE Arca receives the same amount of revenue from both. Tr. 119 ("Whether they take a data feed directly from the

NYSE Arca further tries to evade the obvious import of its [redacted] subscriber losses by arguing that customers incurred infrastructure costs to take the data feed before the fees took effect. Br. 6, 25. No evidence supports this claim. NYSE Arca cites only its counsel's questions, which are not evidence. *See id.* NYSE Arca also ignores that the [redacted] of customers who maintained their accounts despite NYSE Arca's massive price increase were [redacted]. Evans Tr. 1291–92; *see* Brooks Tr. 155. And even if some customers did incur such costs, high switching costs would only *increase* NYSE Arca's market power, not decrease it. *See Eastman Kodak*, 504 U.S. at 476; Evans Tr. 1288.

In response to this overwhelming evidence of significant market power, NYSE Arca did not present any evidence showing it has ever suffered significant subscriber losses in response to any of the numerous other price increases it has imposed over the last seven years. *See* Brooks Tr. 92–93. To the contrary, Mr. Brooks agreed that NYSE Arca does not [redacted] and does not have "[redacted]." *Id.* at 143–44, 150. NYSE Arca's fact and expert witnesses could not identify [redacted]. *Id.* at 137–38 (failing to "[redacted]" or "[redacted]"); Hendershott Tr. 257–58 ("[redacted]" any customer "[redacted]

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exchange or whether they take the data feed from Bloomberg, they pay the same amount for the exchange. So it's seamless to me if there's a hop in the middle."); *id.* at 38 ("no data recipient is going to circumvent the fees by not getting the data directly").

[14] It is no answer to say that "both metrics moved in tandem in exactly the same direction—they declined." NYSE Br. 24 n.27. There is a world of difference between a [redacted] decline and a 23% decline. NYSE Arca cannot have it both ways by claiming that it lost a "significant" number of accounts while at the same time asserting through its experts that demand is inelastic. Further, that some customers departed does not show the existence of a competitive constraint; even a monopolist faces a demand curve and will lose customers as it increases prices beyond what some are willing to pay. *Advo, Inc. v. Phila. Newspapers, Inc.*, 51 F.3d 1191, 1203 (3d Cir. 1995) ("demand curve constrains the behavior of all sellers, even monopolists"); *see* Evans ¶¶ 10, 32, 36, 45 n.51; Evans Tr. 1071–72, 1136, 1210–11; Ordover Tr. 764.

[redacted]"); Nevo Tr. 351–52 ("[redacted]."). Mr. Brooks knew of [redacted]—[redacted]—that dropped a depth-of-book product because of price, and he had [redacted]. Tr. 72–73, 112, 135.[15] And NYSE Arca's own experts agreed that the subscriber-loss data show that demand for ArcaBook is "inelastic." Hendershott & Nevo ¶ 74.

These data and testimony directly contradict the representation in NYSE Arca's prehearing brief that its experts "have examined actual customer switching behavior and demonstrated that it is significant." Br. 18 n.20. Its experts testified exactly the opposite: they had *not* observed "actual customer switching," and therefore could not possibly have determined that any switching was "significant." This failure to identify customer switching in response to price increases means NYSE Arca has not remotely carried its burden under the D.C. Circuit's controlling standard. To the contrary, the data it produced show that the vast majority of its customers would not "substitute [an alternative product] (or simply do without) instead of paying a supracompetitive price." *NetCoalition I*, 615 F.3d at 544.

2. Evidence regarding trader behavior in response to Nasdaq price increases likewise shows insignificant substitution. The data confirm what Nasdaq has repeatedly told the investing public, and what its CFO admitted in his testimony: that Nasdaq wields "strong pricing power" over its depth-of-book products, because it can "[redacted]." Shavel Tr. 1384–88 (discussing SIFMA-298, -302, -386). Nasdaq imposed a number of price increases between 2008 and 2012, but determined that its pricing

[15] Throughout its brief, NYSE Arca incorrectly states that [redacted] dropped ArcaBook. Br. 28 n.32, 29, 31. In fact, Mr. Brooks testified that [redacted]. Tr. 72. And as NYSE Arca's counsel explained in objecting to any evidence relating to the [redacted] "[redacted]." *Id.* at 146. NYSE Arca's witnesses thus did not identify *a single customer* that dropped ArcaBook in response to a price increase.

caused no loss of customers for its flagship TotalView product. Albers Tr. 596–98; NQ-526 at 227; SIFMA-132 at 665; Evans ¶ 48. Indeed, when Nasdaq's alleged subscriber losses are weighted by revenue, as Nasdaq's economist agrees they should be, the data show virtually no substitution whatsoever. Evans ¶ 47 & Ex. 3.[16] This evidence is squarely at odds with the theory advanced by Nasdaq in its submissions to the Commission and the D.C. Circuit that competition among alternative depth-of-book products significantly constrains Nasdaq's pricing power.

For example, in April 2012, Nasdaq imposed a significant price increase, which even its own economist agreed was "[redacted]," Ordover Tr. 708, when it created a new $300 monthly subscriber fee for nondisplay usage that was previously covered by its $70 monthly professional display fee, and more than doubled the cap for nondisplay usage from $30,000 to $75,000. 77 Fed. Reg. 21125 (Apr. 9, 2012). In the year following this price increase, Nasdaq lost [redacted] of its customers, but those customers accounted for only [redacted] of Nasdaq's depth-of-book revenue. Evans Ex. 3; Evans Tr. 1296–98. Thus, as with NYSE Arca, Nasdaq's own data "[redacted]." Evans Tr. 1299.

Oliver Albers, Nasdaq's longtime global head of sales in its data products department, made conclusory assertions that Nasdaq's "customers mov[e] back and forth between different products." Tr. 444. But such "'bare assertions' d[o] not amount to substantial evidence."

[16] Professor Ordover's "churn" analysis suffers from multiple flaws that make it unreliable, including because he did not know whether a customer that he counted as a "loss" simply switched to taking Nasdaq's data through a redistributor, left the industry, or stopped subscribing for reasons unrelated to price. Evans ¶¶ 41–42; Donefer ¶¶ 78–80; Ordover Tr. 767–68, 774–77. But even if the "losses" are taken as given, they are insignificant on a revenue-weighted basis, which even Professor Ordover conceded is the appropriate metric for assessing substitution. Tr. 752; *see* Horizontal Merger Guidelines § 6.1; Evans Tr. 1294–96.

Helicopter Ass'n Int'l, Inc. v. FAA, 722 F.3d 430, 435 (D.C. Cir. 2013). Under cross-examination, moreover, his story of intense competition wilted. He could identify only *three* customers who switched from TotalView to ArcaBook over the last ten years. Tr. 565–66. He identified *no* customers who switched from ArcaBook to TotalView during that time. Despite the supposedly aggressive marketing and innovation efforts that he described, *id.* at 392, 438, he could not recall a single instance in which he or his marketing staff lured a customer away from Nasdaq's chief rival. And despite the fact that ArcaBook was free before 2009, when Nasdaq was already charging considerable fees, Evans Tr. 1254, Mr. Albers could not recall a single customer he lost to NYSE Arca. This evidence belies Nasdaq's generic descriptions of vigorous competition among depth-of-book products and instead shows that Nasdaq and NYSE Arca rarely, if ever, threaten each other's customer base and revenue streams. The evidence is at odds with the story that Mr. Albers told at the hearing, but it powerfully corroborates what CFO Lee Shavel described to investors when he trumpeted Nasdaq's "pricing power." Tr. 1384–88.[17]

Likewise, Professor Ordover identified only [redacted] of Nasdaq customers who allegedly switched to a NYSE Arca product. His report identified only [redacted] such customers over [redacted]. ¶ 28. At the hearing, Professor Ordover reported he had found [redacted]. Tr. 777. But even if these were indeed instances of switching, *but see supra*, 23 n.16, that number of switches is still insignificant over [redacted] period. And the revenue Nasdaq lost from the alleged switchers was [redacted]. Evans ¶ 47 & Ex. 3. Those losses were more than recouped: Nasdaq's revenue [redacted]. Albers Tr. 656. Thus, Nasdaq was willing to sacrifice [redacted] customers in order to [redacted]

[17] Mr. Albers's claim that Nasdaq "model[s] out what the different pricing changes would look like," Tr. 496, proves nothing. As noted above, even firms with significant market power lose customers when they increase prices beyond what some are willing to pay. *See supra*, 21 n.14.

[redacted]. Professor Ordover concurred: "the fee increases that Nasdaq implemented" produced "some losses, but not losses that were very large," because Nasdaq "had some flexibility of going up and down without so much losing volume and profits as to make it unprofitable." Tr. 753.[18]

Thus Nasdaq, like NYSE Arca, produced evidence that not only fails to carry its burden, but in fact confirms that the Exchanges wield significant market power.

B. The Exchanges' evidence fails to show that the availability of alternatives significantly constrains their depth-of-book data fees.

Unable to dispute their own subscriber data showing an almost total lack of substitution in response to significant price increases, the Exchanges advance a host of other arguments in an effort to change the subject. None of these arguments addresses the dispositive question framed by the D.C. Circuit: whether depth-of-book data prices are constrained by customers' ability to switch to other products or stop buying in the face of price increases. *NetCoalition I*, 615 F.3d at 542–43; *see* Evans ¶ 53; Evans Tr. 1069, 1135. These arguments do not and cannot carry the Exchanges' burden of showing that competition significantly constrains their fees.

1. The Exchanges claim the depth-of-book data market is characterized by "fierce price competition," but neither Exchange produced any meaningful evidence of price competition. Indeed, Mr. Albers testified that Nasdaq has *never* matched another exchange's price for depth-of-book data. Tr. 571. Nor have the Exchanges explained why, if there is such fierce

[18] These facts refute Nasdaq's claim that customers' ability to reduce usage (as opposed to switching or dropping the product) significantly constrains its fees. Br. 18. Nasdaq presented no systematic data showing that it loses significant revenue from customers that reduce usage when it raises its fees, even though Nasdaq has those data and could have presented them if they were favorable to its position. *See* Evans ¶ 43 n.49. Nasdaq's lone [redacted] anecdote proves nothing. *See Vollrath Co., v. Sammi. Corp.*, 9 F.3d 1455, 1462 (9th Cir. 1993) ("anecdotal evidence" inferior to systematic analysis of market data); Evans Tr. 1207 ("[redacted]"); *id.* at 1193–95.

competition, prices have not converged. *See* Donefer Ex. 2; *In re Graphics Processing Antitrust Litig.*, 527 F. Supp. 2d 1011, 1022 (N.D. Cal. 2007); Evans ¶ 52 n.62 ("If depth-of-book data products from different exchanges were close substitutes, we would expect to see consumers purchasing only from the lowest-priced provider."). Why, for example, was Nasdaq able to charge substantial fees for its depth-of-book data when ArcaBook was free? *See* Evans Tr. 1254. Why is NYSE able to charge $60 per month to its professional subscribers for OpenBook, when Nasdaq's allegedly competing OpenView product costs only $6? *See* Albers Tr. 439, 570–71. And why, if BATS's depth-of-book data product is a competitive threat, have the Exchanges not matched BATS's considerably lower prices? *See* Evans ¶ 76 ("the much lower price of the BATS/Direct Edge data indicates that its pricing does not constrain that of the other exchanges"). And why did Mr. Brooks not know the [redacted]? *See* Tr. 64.[19]

The only evidence cited by either Exchange of a data fee supposedly being lowered in response to a competitive threat is a fee cap that Nasdaq implemented for its [redacted] customers. Ordover ¶ 17. Far from showing price competition, this simply shows Nasdaq's market power—Nasdaq more than doubled the cap after just two years. Ordover Tr. 754–58; Albers Tr. 637–38; Evans ¶ 74. The Exchanges also cite a 2014 complaint by [redacted], who stated that [redacted]." Ordover ¶ 24. But Nasdaq well knows this threat was idle—not only did Nasdaq not lower its fees, it raised them by 50%, and yet [redacted]. Albers Tr. 654–55; Ordover Tr. 760–64.

[19] The Exchanges claim BATS is one of their primary competitors in the depth-of-book data market. Albers Tr. 479, 610; Ordover Tr. 676, 694. But Mr. Albers testified that the BATS product competes with the "NASDAQ [B]asic product and [with] the NYSE BQT [Best Quote and Trade] product," *not* with the Exchanges' depth-of-book products. Tr. 476.

2. The Exchanges make much of the relatively small population of market participants who subscribe to depth-of-book data. Nasdaq Br. 2, 13–14, 19; NYSE Br. 29 n.33, 40, 41 n.49, 44. The D.C. Circuit, however, squarely rejected the contention that the size of the depth-of-book market indicates a lack of market power: "that there are few buyers does not by itself demonstrate a lack of market power—which, after all, is 'the ability to raise price profitably by *restricting output.*'" *NetCoalition I*, 615 F.3d at 543; *see* Evans Tr. 1300–01. As Nasdaq's own economist explained, "one of the hallmarks of anticompetitive behavior is an attempt to restrain supply for the purposes of raising the price." Ordover Tr. 680; *see* Evans ¶ 36. The question is not how many traders need depth-of-book data. Rather, as NYSE Arca recognizes, it is whether "*enough of [the Exchanges'] user base*"—and, more precisely, enough of the users who account for significant revenue—can and do substitute in the face of price increases. Br. 27. The evidence described above shows that the answer to that question is a resounding "no."

In fact, the limited number of subscribers *confirms* that the Exchanges have significant market power and contradicts their self-serving claims that they are trying to disseminate their data as widely as possible. The profit-maximizing strategy for firms with significant market power is to extract higher prices (and thus greater profits) from customers whose demand is inelastic because the product is essential to them, even though this means sacrificing sales to other potential customers whose demand is more elastic. Evans ¶ 36 ("a monopoly chooses not to serve customers that place a low value on its product in order to raise its prices and earn much greater profits from customers that place a high value on its product"); *id.* ¶ 10; Evans Tr. 1071. The Exchanges have presented no evidence that any efforts to "sell data to those traders who do not require all depth-of-book data" has put downward pressure on their prices. Nasdaq Br. 3–4.

Rather, the evidence shows the Exchanges have instead found ways to "harvest" more revenue from customers for whom the data are essential. Albers Tr. 593–94. The Exchanges now concede their depth-of-book data products are essential to many market participants—consisting, according to Nasdaq, of "roughly 100 large banks and electronic trading firms." Nasdaq Br. 3; *see* Shavel Tr. 1344 (conceding the data are "crucial for a category of traders" including "large banks, sophisticated market makers, algorithmic traders"); Ordover Tr. 715–16; *cf. NetCoalition I*, 615 F.3d at 543 ("that few people buy the data tells us little about whether the data is 'critically important' to those traders who do").[20] And it is precisely these firms that the Exchanges have targeted for "naked price increases" by, among other things, imposing nondisplay fees for computer-based uses of the data. Brooks Tr. 43; Albers Tr. 463, 593–94, 602–05.

These "naked price increases" directly contradict Professor Ordover's claim that Nasdaq has no "ability to identify those customers [that have a strong preference for its data products] and charge a higher price to them." Ordover ¶¶ 31–32. To the contrary, the Exchanges "engage in a fairly significant amount of price discrimination," Evans Tr. 1181, by charging different fees based on the type of user (*e.g.*, professional vs. nonprofessional) and the type of use (*e.g.*, display vs. nondisplay). Albers Tr. 669. Thus, even if the Exchanges had shown that competition constrains the price paid by customers who pay the nonprofessional fees (such as retail brokers

[20] Nasdaq misrepresents the record in citing Professor Donefer for the proposition that the only traders who require depth-of-book data are the "group of roughly 100 of the largest banks and electronic trading firms who purchase depth-of-book data for their servers." Nasdaq Br. 2 (citing Donefer Tr. 1013). Professor Donefer agreed that depth-of-book data are essential to the 5,000 "machine subscribers" identified in NQ-DEMO-16. But he expressly *disagreed* that the data are not essential to other users represented in the demonstrative. Donefer Tr. 1013 ("It's on those levels above there that we have some difference of opinion."). As Professor Donefer explained, some of the 30,000 TotalView professional subscribers, the 85,000 Nasdaq depth subscribers, and even the 350,000 SIP or Basic subscribers undoubtedly find the data essential, "depend[ing] on the user and what they're doing and what their strategy is." *Id.* at 1010–12; *see also* Donefer ¶ 60 (depth-of-book data are essential to "institutional investors such as pension funds, mutual funds, insurance companies, and large charitable and educational endowments").

that purchase the data for their retail investors)—which they have not[21]—that would say nothing about whether the separate and much higher fees they charge to professional and algorithmic traders reflect the exercise of significant market power. Indeed, by limiting its price-competition argument to small customers, Nasdaq effectively concedes that many of its largest customers have no ability to substitute alternative depth-of-book data products in the face of massive price increases such as the 2012 nondisplay fee increase. Br. 2–4.

3. Both Exchanges' experts presented data showing that some customers buy depth-of-book data from some but not all exchanges. Nevo Tr. 319–22 ([redacted] of Nasdaq customers also buy a NYSE depth-of-book product); Ordover Tr. 781 ([redacted] of Nasdaq depth-of-book customers also buy ArcaBook). But "these data don't show anything about switches between products, and certainly not in response to price changes." Evans Tr. 1305; *see* Nevo Tr. 350–52. They thus say nothing about the relevant question: whether "the availability of depth-of-book data from other exchanges constrains NYSE Arca's or NASDAQ's pricing of its depth-of-book data significantly." Evans ¶ 50. "That a given customer chooses to purchase, for example, depth-of-book data from NASDAQ but not from NYSE Arca says nothing about whether that customer is willing to substitute NYSE Arca's data for NASDAQ's data in response to a small but significant increase in the price of NASDAQ's data, which is the test used in antitrust economic analysis." *Id.* ¶ 51; *see, e.g.*, *Mobil Pipe Line Co. v. FERC*, 676 F.3d 1098, 1102 (D.C. Cir.

[21] The Exchanges argue that their nonprofessional fees are competitively constrained simply because some retail brokers buy only a subset of the depth-of-book products. NYSE Br. 18. But that says nothing about whether they treat the products as substitutes. Evans ¶ 51; Evans Tr. 1253–55, 1305–09. The Exchanges presented no evidence of how retail brokers have responded to price changes and thus did not carry their burden of proving substitution. And the Exchanges' order-flow theory does not apply to retail investors who do not route their own orders.

2012); Evans Tr. 1304–09; *supra*, 17–18 & n.10.[22] Indeed, both Exchanges' economists conceded that these data were offered for the limited purpose of attacking the straw man that all market participants must buy all depth-of-book products. Nevo Tr. 344–45, 349; Ordover Tr. 782.[23] These data thus do nothing to advance the Exchanges' case. In fact, they undermine it: "If the products were substitutes, there would be no reason why [redacted] subscribers would find it necessary to purchase both." Donefer ¶ 71; *see* Evans Tr. 1253–55.

4. Professors Hendershott and Nevo argue that monthly trading in many securities is dispersed across exchanges. ¶¶ 55–63. But this says absolutely nothing about whether traders treat depth-of-book products as substitutes. Even if a stock is traded on multiple exchanges, liquidity may fluctuate significantly from one exchange to another over the course of even a single day. Donefer ¶¶ 39–43, 47–49; Donefer Tr. 898–901. Many traders—particularly those needing to trade large blocks that may require liquidity from multiple exchanges—cannot afford to do so without visibility into each of the major exchanges. Donefer ¶ 72; Donefer Tr. 816–17. Thus, "these analyses are irrelevant for determining the need for depth-of-book data because they do not reflect the concentration in liquidity available at an exchange at the time when traders are

[22] NYSE Arca's experts claimed that if a market participant buys only one depth-of-book product, then the other depth-of-book products are necessarily substitutes. Hendershott Tr. 180, 257; Nevo Tr. 355. That is wrong. A trader might, for example, have a strategy that focuses on a particular exchange. The only way to know as an economic matter whether the products are substitutes is to observe how buyers respond to relative changes in price. Evans Tr. 1308.

[23] SIFMA has never claimed that all market participants must buy all depth-of-book products. Donefer Tr. 816. Rather, it claims—and the Exchanges have now conceded—that access to all depth-of-book products is essential for many market participants. *See supra*, 28. And this just provides an *explanation* for why buyers do not substitute. What ultimately matters, though, is the *fact* that they do not substitute, not the reason why they do not. Evans Tr. 1266–67.

seeking that liquidity." Evans ¶ 72; *see* Donefer Tr. 895 (HHI analysis is "not something anybody in the industry really uses.... I've never seen it used by anybody in trading.").[24]

Further, as the Exchanges' economists concede, trading for some equities—particularly mid- and small-cap stocks that are an important part of many investors' trading strategies—may be concentrated on a single exchange (typically, the listing exchange), such that an investor who stopped buying that exchange's depth-of-book data product would lose significant visibility. Donefer ¶¶ 48, 77; Ordover ¶ 41 ("certain stocks tend to be more heavily traded on a particular exchange"); Hendershott & Nevo ¶ 61(c) ("Stocks that exhibit concentrated trading volume are more likely to be small-cap and thinly traded stocks."); Albers Tr. 414 ("[NYSE] Arca is not as strong in non NYSE listed issues."). As Professor Donefer explained, investors cannot simply ignore these securities. Tr. 897 ("[A]s an investor, what I'm told is invest in large cap, small cap and mid cap. This is not an area that you can just ignore.").[25]

5. Their own analysis having fallen short, the Exchanges seek to piggyback on unadjudicated allegations made by the Justice Department in a complaint and a press release.

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[24] They also suffer from serious methodological flaws that cause them to understate significantly the number of stocks for which trading is concentrated. Evans ¶ 72 n.83. For example, they improperly include trading on non-exchange trading venues. *Id.* NYSE Arca claims that "Dr. Evans provides no explanation why non-exchange *trading* venues should be excluded from calculations of concentration in *trading*." Br. 16 n.19. But that is wrong: Dr. Evans explained that these venues should be excluded because the issue is traders' need for *depth-of-book data*, and "*depth-of-book data* are generally not available" from non-exchange trading venues. Evans ¶ 72 n.83 (emphasis added). If one exchange has more trading in a particular security than the other exchanges, a trader who needs maximum visibility into the market for that security needs the depth-of-book data from that exchange. That some trading may also take place on unlit venues (which do not provide pre-trade data) does not change that. Donefer ¶ 76. Likewise, the fact that not all orders on exchanges are displayed, NYSE Br. 19 n.22, does not diminish the need to obtain all *available* data in order to have the most comprehensive view possible.

[25] Relying on an academic article, Professors Hendershott and Nevo also contend that information is "correlated" across exchanges. ¶ 92. This purely theoretical argument says nothing about whether traders in the real world treat depth-of-book products as substitutes. Donefer Tr. 1057–58; Evans ¶ 30 n.32. NYSE Arca's concession that the article says nothing about price correlation across exchanges, Br. 31 n.35, just proves the point: in the real world, price matters.

NYSE Br. 2, 13; Nasdaq Br. 15. These allegations are not "evidence" of anything and are entitled to no weight. None of the economists in this case examined the Department's underlying analysis, which is confidential. Ordover Tr. 748–49. There is thus no way to know whether the Department examined the same evidence presented in this proceeding. Evans Tr. 1310. Moreover, the fact that the Department seeks to block a merger because it believes the merger will diminish competition does not mean that the Department believes existing prices are constrained to the competitive level. *Id.* at 1310–11. This case must be decided based on the evidence before the Commission, not based on unproven allegations of another agency.

In sum, the Exchanges have utterly failed to carry their burden of proving that the availability of alternatives significantly constrains their prices. The evidence overwhelmingly shows the opposite: there is virtually no substitution in response to significant price increases.

II. Competition For Order Flow Does Not Significantly Constrain The Exchanges' Depth-of-Book Data Fees.

The Exchanges also failed to carry their burden of showing that competition for order flow significantly constrains their depth-of-book data fees. Much of their evidence is directed at a proposition that never has been in dispute: that the market for executing trades is competitive. *See NetCoalition I*, 615 F.3d at 539 ("No one disputes that competition for order flow is 'fierce.'"). But the fact that exchanges must compete to attract order flow, by itself, says nothing about the separate question here: whether "order flow competition constrains market data prices." *Id.* at 541. In *NetCoalition I*, the D.C. Circuit rejected the Exchanges' order-flow theory, finding a "lack of support in the record" for the assertion that order-flow competition constrains depth-of-book data fees. *Id.* The record here is equally devoid of support. Indeed, if anything, the record shows that competition for order flow has led to *higher* depth-of-book data fees.

The Exchanges' order-flow theory depends on two distinct propositions: (1) that there is a strong and direct connection between the Exchanges' depth-of-book data fees and their ability to attract order flow, such that an increase in an Exchange's depth-of-book data fees would lead to a significant loss in order flow; and (2) that the Exchanges' need to compete for order flow therefore constrains them to price their depth-of-book data products competitively. The record supports neither proposition. The Exchanges have not shown that their depth-of-book data fees significantly affect their ability to attract order flow, and both economic theory and the record evidence indicate that competition for order flow gives the Exchanges the incentive to charge *more* for their depth-of-book data products, for which they face less competition. Indeed, the undisputed evidence shows that, during a period when order-flow competition was intensifying, the Exchanges imposed "naked price increases" for their depth-of-book data products on the very firms on whose order flow they claim to depend for their competitive survival.

A. The Exchanges' depth-of-book data fees do not significantly affect their ability to attract order flow.

At the hearing, the Exchanges claimed their depth-of-book data fees significantly affect their ability to attract order flow because their customers can "penalize" them for excessive data fees by diverting order flow elsewhere.[26] In fact, the evidence shows there are significant

[26] In its brief, NYSE Arca theorizes another way in which depth-of-book data fees could potentially affect an exchange's order flow. It claims that if a trader stops buying an exchange's data in response to a price increase, the trader will be less likely to route orders to the exchange. Br. 22. But even if that were true (and NYSE Arca has no evidence that it is), it would not follow that data fees significantly affect order flow. As shown above, the vast majority of the Exchanges' subscribers—and particularly those who account for large volumes of order flow—do *not* stop buying the data in response to price increases. *See supra*, Part I.

constraints on traders' ability to shift order flow in response to market data fees, and there is no evidence that the Exchanges' depth-of-book data fees significantly affect their order flow.[27]

1. As Professor Donefer explained, traders have little practical ability to shift their order flow in response to market data fees because doing so would hurt the quality of their trade execution (the percentage of orders that clear and at what prices). Donefer ¶¶ 69–70. Broker-dealers owe their customers a duty of best execution under both the FINRA rules and state agency law, and their customers—particularly institutional investors who trade in large size—use sophisticated techniques to monitor the quality of trade execution, and will move their business elsewhere if the quality falters. *Id.* ¶¶ 67, 70; Donefer Tr. 947–48, 1039–40, 1049–50; Albers Tr. 641 (agreeing that "best execution . . . restrict[s] FINRA members from directing order flow in certain ways"). Even traders acting on their own behalf would incur a significant cost in forgone profits if they routed their orders away from the exchange that offered the most profitable trading opportunities because they objected to the exchange's market data fees. Evans Tr. 1202 ("making the decision that you're not going to go to a whole exchange and look for the best deal possible, which might be on that exchange, that's a costly decision for you to make"). As a result, routing orders away from "large source[s] of liquidity" like Nasdaq and NYSE Arca based on their market data fees is "not sustainable," Donefer Tr. 1039, and could place the trader in violation of best execution obligations.[28]

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[27] NYSE Arca claims there is no "dispute about the linkage between depth-of-book data and order flow." Br. 19. That is wrong. The parties dispute whether data fees significantly affect an exchange's order flow, and SIFMA certainly has never "concede[d]" they do. *Id.* at 2.

[28] The mere fact that order flow is "portable" does not mean that traders can use their order-routing decisions as "leverage" to exert pressure on depth-of-book data fees. NYSE Br. 43; Nasdaq Br. 20–21. Obviously order flow is "portable" in the sense that it can be moved based on which trading venue offers the best chance of execution at the best price and the lowest cost for executing the order. This, of course, is what makes competition for order flow possible, and these are the factors—not the price of market data—that drive order-routing decisions.

2. To support their contrary claim, the Exchanges have produced [redacted] out of thousands that [redacted] over [redacted] period removed order flow in response to a market data fee increase—[redacted]. Albers Tr. 643; *see* Brooks Tr. 156 (admitting he was not aware of [redacted] that "[redacted]"). Even if this lone example supported the Exchanges' theory (which it does not), a single anecdote falls far short of carrying the Exchanges' burden. *See supra*, 25 n.18. The Exchanges—not SIFMA or its members—are the ones who have the data to determine systematically how changes in their data fees have affected their overall order flow. But apart from NYSE Arca's deeply flawed "regression" (discussed below), they did not offer any of that information, opting instead to rely on a handful of cherry-picked vignettes from which it is impossible "to draw valid statistical inferences." Evans ¶ 68. Indeed, the fact that, between them, the two major national securities exchanges were able to identify only *one* instance, over a period of six years, of a customer shifting order flow in response to market data fees speaks volumes.

Moreover, the [redacted] anecdote *confirms* that traders have limited ability to shift order flow to exert pressure on market data fees. [redacted] email on its face reflects that [redacted]'s best execution obligations limited its ability to shift order flow. NQ-505 at 2; Donefer Tr. 1039. Nasdaq's own personnel recognized that [redacted] was harming itself by diverting orders. Albers Tr. 645 (admitting [redacted]"); NQ-507 at 3 ([redacted]") (emphasis added). And, as discussed further below, [redacted]'s actions did not persuade Nasdaq to lower the price.[29]

[29] The anecdote also confirms that [redacted] had no substitutes to which it could turn—if [redacted] could have simply switched to another provider or dropped Nasdaq's data, it would not have needed to "[redacted]" in an [redacted]. *See* Ordover Tr. 800 ("[redacted]").

Further, although Nasdaq claims the diversion of order flow was sustained, its only evidence is an exhibit that it produced for the first time on the last day of trial, with no prior notice to SIFMA, and without having previously produced the underlying data. *See* NQ-619; Evans Tr. 1195–98. This sandbagging should not be tolerated. Professor Ordover's report did not cite, and Nasdaq did not otherwise produce, any data to support his claim that Citigroup "[redacted]." ¶ 36. And Professor Ordover testified that he believed "[redacted]." Tr. 795. Likewise, Mr. Albers [redacted]. Tr. 643. Particularly given the prominence of the [redacted] anecdote in the case, Nasdaq's springing of this exhibit and issue on the last day of trial, just hours before the record closed, in circumstances where SIFMA had no opportunity to respond, was fundamentally unfair and highly prejudicial. For these reasons, SIFMA renews its objection to the admission of Nasdaq Exhibit 619. *See In the Matter of the Application of John Edward Mullins*, Release No. 34-66373, 2012 WL 423413, at *15 & n.65 (Feb. 10, 2012) (late evidence inadmissible for precluding fair opportunity for verification).[30]

To the extent the Chief ALJ considers Exhibit 619, it does not undermine the evidence that [redacted] "[redacted]" because "[redacted]." Evans Tr. 1192–93. Nasdaq asserts that "[redacted]." Br. 23. But this is based on the implausible notion that the drop necessarily represents orders [redacted] "diverted" based on depth-of-book data fees. Order volume "goes up and down all the time," Hendershott Tr. 203, "for a variety of reasons unrelated to the cost of depth-of-

[30] It is no answer to say the exhibit was produced in response to Dr. Evans's cross-examination. Nasdaq had been on notice at least since Dr. Evans filed his report on March 6, 2015, that he criticized Nasdaq's reliance on the [redacted] anecdote in part because Nasdaq had "[redacted]." Evans ¶ 69.

book data." Ordover ¶ 41. Nasdaq presented no evidence that depth-of-book fees, rather than broader market factors or other [redacted]-specific issues, are responsible for the volume characterized in Exhibit 619.[31] This omission is critical, because [redacted]'s dip was not isolated: Nasdaq volume [redacted]. NQ-DEMO-3 (source data). Total U.S. trading volume, as well as Nasdaq's total volume, did not return to pre-June 2012 levels for over two years. *See id.*; Ordover Tr. 678 ("NASDAQ and its associated exchanges have actually lost shares ... all the way down to the end of 2014"). This context goes directly to the weight and integrity of Exhibit 619 and the conclusions that Nasdaq argues flow from it, and would have been the core of SIFMA's cross-examination—had not the late introduction of the exhibit unfairly deprived SIFMA of that opportunity.

Apart from the [redacted] anecdote, the Exchanges identify no other instance in which a customer actually pulled order flow in response to market data fees. They identify a handful of customers who they claim threatened to pull order flow. NYSE Br. 21 ([redacted]); Nasdaq Br. 23–24 ([redacted]). But there is no evidence that these were credible threats, or that they would have materially affected the Exchanges' order flow if they were carried out. Given that the Exchanges could identify [redacted], despite supposedly hearing such threats "all the time," Albers Tr. 539, the inference to be drawn is that the Exchanges know these threats are empty.

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[31] For example, Exhibit 619 does not control for the potential decline in Nasdaq's volume caused by its mishandling of the Facebook IPO in late May 2012, which resulted in Nasdaq paying the largest fine ever levied against an exchange for its "poorly designed systems and hasty decision-making" that "produced serious and pervasive violations of fundamental" securities laws. SEC, Press Release No. 2013-95, http://1.usa.gov/1zz7Ggs (May 29, 2013) (quoting George Canellos, Co-Director of SEC Division of Enforcement). The botched IPO "rocked the United States stock markets" and revealed "widespread" shortcomings at Nasdaq that "hurt its reputation and damaged investor confidence." New York Times, *Nasdaq Is Fined $10 Million Over Mishandled Facebook Public Offering*, http://nyti.ms/1CCa7BM (May 29, 2013).

Finally, Nasdaq claims that [redacted] sent order flow to Nasdaq in response to a market data fee cap. Br. 24. In fact, any additional order flow was likely in response to Nasdaq's Investor Support Program (ISP), which provided rebates to customers for posting orders. Albers Tr. 386; NQ-503; SIFMA-358. The market data fee cap did not persuade [redacted] to continue routing orders to Nasdaq, so Nasdaq raised the cap from $325,000 to $500,000. Albers Tr. 636. The [redacted] anecdote provides no evidence that the Exchanges' depth-of-book data fees significantly affect their order flow. Donefer Tr. 1045–46.[32]

3. The only effort either Exchange made to present systematic evidence of a relationship between depth-of-book data fees and order flow is the "regression analysis" performed by Professors Hendershott and Nevo, which they claim "suggest[s] that NYSE Arca lost share in trading volume following the January 1, 2009 ArcaBook price increase." ¶ 70.[33] But the mere fact that NYSE Arca lost share in trading volume after January 1, 2009—which can be observed simply by comparing its share before and after that date, without any regression analysis—says nothing about whether the ArcaBook price increase *caused* the loss in trading volume. Evans Tr. 1322–26. The "regression analysis" provides no evidence that the ArcaBook price increase caused NYSE Arca to lose order flow. Evans ¶ 62; Evans Tr. 1327.

First, apart from calculating NYSE Arca's share of trading volume relative to other exchanges and trading venues during two timeframes, Professors Hendershott and Nevo did not control for any factors affecting NYSE Arca's trading volume. Evans ¶ 62; Evans Tr. 1323–24;

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[32] The large swings in these fees also are "not consistent with a market in which NASDAQ's prices are being significantly constrained by the existence of substitutes." Evans ¶ 70.

[33] NYSE Arca also cites an academic article by Professor Hendershott purporting to show that the Island ECN lost order flow when it stopped providing depth-of-book data altogether. Hendershott Tr. 199–200. But that article was in the record in *NetCoalition I*, and the D.C. Circuit correctly held that it "say[s] nothing about whether an exchange like NYSE Arca is constrained to price its depth-of-book data competitively." 615 F.3d at 541–42.

Nevo Tr. 366–67, 372–73. They did not, for example, include a time-trend control to account for the fact that NYSE Arca's share was already declining before January 1, 2009 (as is apparent just by looking at their Exhibit 2); they did not control for any changes in NYSE Arca's trade execution prices compared to other trading venues; and they did not control for any other factors that may have affected NYSE Arca's share of trading during that timeframe. *Id.* As a result, their analysis "wrongly attributes the change in NYSE Arca's share over this period entirely to the increase in the depth-of-book data fees," which "makes no economic sense." Evans ¶ 62.[34]

Second, in calculating NYSE Arca's trading volume as a share of total exchange volume, Professors Hendershott and Nevo included BATS's trading volume in the denominator after it became an exchange on October 24, 2008, but not before, leading to an artificially lowered share for NYSE Arca after that date. Evans ¶ 61. Professors Hendershott and Nevo claim this was not an "error" because BATS, in fact, did not become an exchange until October 24, 2008. Hendershott Tr. 204; Nevo Tr. 285–86. But this just underscores the flaw in their analysis—they did not account for other factors that affected NYSE Arca's share of exchange trading volume during the period they examined, such as the entry of a new exchange that already had significant trading volume, which all else equal necessarily would cause NYSE Arca to have a lower share of exchange trading volume after BATS's entry than before.

Third, Professors Hendershott and Nevo did not analyze any of NYSE Arca's other price increases to determine whether they affected NYSE Arca's order flow. For example, NYSE Arca

[34] In fact, their analysis leads to the nonsensical conclusion that the ArcaBook price increase caused *Nasdaq* to lose order flow. Evans ¶ 62 & n.72. Dr. Nevo did not deny that running his "regression" on Nasdaq led to this nonsensical conclusion, but he tried to deflect this criticism by saying he was not trying to determine what caused Nasdaq's decline in trading volume, and that to do so he would need to "build a regression model" specific to Nasdaq. Tr. 287–89. That makes no sense because the model he did build for NYSE Arca did not contain any information specific to NYSE Arca other than that it imposed a price increase. Evans ¶ 62.

imposed significant price increases—including major price increases for high-frequency and algorithmic traders that account for significant trading volume—in April 2013, February 2014, and September 2014. SIFMA-378; SIFMA-380; *supra*, 14. Yet NYSE Arca's share of trading volume did not significantly decline after any of those price increases. *See* Evans Tr. 1325–26.[35] And the Exchanges presented no evidence that their market share of order flow moves in tandem with their depth-of-book data fees, as would be expected if their theory were correct.

Neither NYSE Arca's "regression" nor any of the Exchanges' other evidence provides substantial evidence that their depth-of-book data fees significantly affect their order flow.

B. Competition for order flow does not constrain the Exchanges to price their depth-of-book data competitively.

Even if the Exchanges had shown that their depth-of-book data fees significantly affect their ability to attract order flow, that would not be enough to carry their burden. They would still have to show that this constrains them to price their depth-of-book data competitively. *See NetCoalition I*, 615 F.3d at 541 (deeming the failure of proof on this point even "more problematic" than the failure to prove that data fees significantly affect order flow). They have not done so. To the contrary, both economic theory and the record evidence indicate that intense competition for order flow leads the Exchanges to charge *higher* prices for depth-of-book data, because their data products are more profitable than trade executions.

1. Two facts are not in dispute: *First*, there is competition for order flow because there are many venues for executing transactions. Evans ¶ 26; Hendershott & Nevo ¶ 36; Ordover ¶ 7.

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[35] Because Professor Hendershott and Nevo's "regression" did not control for anything other than the fact of a price increase, it does not provide any information beyond what can be seen from inspecting the data in Exhibit 2. Evans Tr. 1323–26. It is apparent from inspecting the graph that NYSE Arca's trading volume was declining before the price increase and just continued to decline after the price increase, that NYSE Arca's trading volume did not decline when it subsequently increased its prices in 2013 and 2014, and as noted above that Nasdaq's trading volume also declined when NYSE Arca increased its price. *Id.*

In economic terms, this means the Exchanges face relatively elastic demand for executing trades. Evans ¶ 9 ("A higher elasticity of demand generally reflects the availability of alternative products that consumers can substitute in response to a price increase."). *Second*, the Exchanges face relatively inelastic demand for their depth-of-book data products. *Id.* ¶ 39; Nevo Tr. 310 ("[redacted]"); Ordover Tr. 753. Inelastic demand results from a product having few or no substitutes. Evans ¶ 39.

This constellation of facts is economically significant. The economic theory presented by Dr. Evans—and not disputed by the Exchanges' economists—holds that where, as here, a firm provides two products, one with elastic demand (order flow) and the other with inelastic demand (depth-of-book data), the firm "will tend to charge more for products that have more inelastic demand as a result of having fewer substitutes and less competition." *Id.* ¶ 21; *see also id.* ¶ 24 ("mutli-product firms tend to impose lower prices on products that have more elastic demand and higher prices on products that have more inelastic demand"). As a result, an "exchange would tend to price depth-of-book data products high and use the profits from the data to enable it to charge low transaction execution prices." *Id.* ¶ 26.

Dr. Nevo claimed the Exchanges' depth-of-book data fees are nonetheless "constrained" because depth-of-book data and order flow are complements. Tr. 310–15; NYSE-86. That is so, Dr. Nevo claimed, because NYSE Arca priced ArcaBook on the inelastic portion of its demand curve, which a firm maximizing profits from a single product would not do. *Id.*[36] But even if that were true, it would say nothing about whether the Exchanges are constrained to price their depth-of-book data products *at the competitive level*. Nevo Tr. 360 (conceding that the chart in NYSE-

[36] In fact, while all parties agree that the demand curve for depth-of-book data is relatively inelastic, Dr. Nevo did not show that ArcaBook's 2009 prices were on the inelastic portion of the demand curve because—as Dr. Evans explained in his report without any response from Dr. Nevo—Dr. Nevo never analyzed the effect of a price increase from 2009 prices. Evans ¶ 65.

86, which is a standard illustration of a monopolist's demand curve, says [redacted]). The "constraint" that Dr. Nevo posited is a profit-maximizing constraint that exists for any firm selling complementary products, even if the firm has significant market power over one or both of the products. Evans Tr. 1315–16.[37]

Even if depth-of-book data and order flow are complements, competition for order flow likely leads the Exchanges to *raise* depth-of-book data prices. Evans ¶ 57. The reason is simple: "what businesses cares about is profit," Evans Tr. 1295, and the Exchanges make more profit on their data than they do on trade executions, precisely because competition for order flow drives down the profit on trade executions. *Id.* at 1316–20; SIMFA-385 (chart based on NYSE-86 showing how competition for the complement drives up the other product's price); *see* SIFMA-242 (CEO of NYSE's parent: "the trading of equities is [n]ever going to be wildly profitable for anybody" because "[i]t's highly competitive," but out of it comes a "fabulous … data business"); SIFMA-142 (showing Nasdaq depth-of-book data profit margins around [redacted]); SIFMA-318 at 8 (earnings presentation showing Nasdaq profit margins for its Market Services segment, which includes trade executions, around 40%–50%); SIFMA-319 at 3 (Nasdaq's Information Services segment, which includes market data, is its "largest operating profit contributor"); Albers Tr. 552 ("revenues and profits from trade execution within NASDAQ ha[ve] declined").[38]

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[37] In its brief, NYSE Arca now claims, incorrectly, that Dr. Nevo's "inelastic demand" theory shows that NYSE Arca lacks market power over ArcaBook. Br. 26–27. Not even Dr. Nevo claimed that. Dr. Nevo claimed only that his theory showed that NYSE Arca was pricing ArcaBook so as to maximize profits from multiple products—*not* that this meant ArcaBook was priced at the competitive level. Hendershott & Nevo ¶ 75; Nevo Tr. 310–15, 360.

[38] NYSE Arca persists in claiming that "market data accounts for less than 9% of NYSE's total revenue." Br. 27. That figure is irrelevant and misleading because it includes revenue from NYSE Euronext's foreign exchanges and from derivatives trading and does not exclude transaction rebates and other expenses. Donefer ¶ 33 n.11; Hendershott Tr. 245–52.

Thus, it may be perfectly rational for the Exchanges to raise their depth-of-book data fees, even if this means they lose some order flow, because the profits they make from the higher data fees are greater than the profits they lose on the order flow. Evans Tr. 1318–19. If, for example, one were to take the results of NYSE Arca's "regression" at face value, an obvious question would arise: if order flow is the "lifeblood" of the Exchanges and they would not "'take any action with respect to market data that might jeopardize [their] position in the competition for order flow,'" NYSE Br. 25, then why would NYSE Arca be willing to take such a large hit to its order flow in order to charge for ArcaBook? Why didn't it rescind the price increase to win back the order flow? Similarly, why didn't Nasdaq lower the price of its depth-of-book data when [redacted] diverted order flow? Likely because the Exchanges make more profit from charging more for their data than they lose from any claimed lost order flow. *See* Evans ¶ 60 (NYSE Arca's "regression" results are "consistent with NYSE Arca's exercising market power over depth-of-book pricing and choosing to sacrifice some revenue from order flow").

In sum, there is no sound economic reason to expect that competition for order flow will constrain the Exchanges to price their depth-of-book data products competitively, and ample reason to believe it will lead them to charge higher depth-of-book data fees.

2. In fact, that is precisely what the evidence shows: during a period in which everyone agrees order-flow competition has been intensifying, depth-of-book data fees have gone up. Evans ¶¶ 58–59.[39] Between 2009 and 2014, NYSE Arca went from charging professional subscribers $0 to $30 to $40 per month, and from charging an access fee of $0 to $750 to $2,000

[39] NYSE Arca claims Dr. Evans confused correlation with causation, Br. 26, but it is NYSE Arca who is confused. It is not SIFMA's burden to show that order-flow competition causes the Exchanges to increase their depth-of-book data fees. It is the Exchanges' burden to show that order-flow competition causes the Exchanges to price their depth-of-book data products competitively. The fact that depth-of-book data fees have consistently risen in the face of intensifying order-flow competition is inconsistent with the Exchanges' theory. Evans Tr. 1068.

per month. *Id.* ¶ 59. In 2013, NYSE Arca created an entirely new $4,000 per month fee for internal nondisplay usage that was previously covered by its professional display fee, and it quickly increased that fee to $5,000 per month in 2014. SIFMA-380; 78 Fed. Reg. 21668 (Apr. 11, 2013); 79 Fed. Reg. 54315 (Sept. 11, 2014); *see also* SIFMA-378 (showing other new or increased ArcaBook fees). And while Nasdaq claims it has infrequently raised its fees, its own expert agreed that it imposed a "[redacted]" in 2012 when it created a new $300 monthly subscriber fee for nondisplay usage that was previously covered by its $70 monthly professional display fee, and more than doubled the cap for nondisplay usage from $30,000 to $75,000. 77 Fed. Reg. 21125 (Apr. 9, 2012); Ordover Tr. 708. This positive relationship between order-flow competition and depth-of-book data fees is inconsistent with the Exchanges' theory that competition for order flow significantly constrains their data fees. Evans Tr. 1068.

Indeed, the significant increases in nondisplay fees directly contradict the Exchanges' theory, because they were targeted specifically at the high-frequency and algorithmic trading firms that the Exchanges claim have leverage over them due to the volume of order flow they control. Brooks Tr. 43; Albers Tr. 463, 593–94, 602–05. As Mr. Albers explained, these were "naked price increases" because the Exchanges were simply increasing the price for high-frequency and algorithmic traders without "giving them any additional content, any additional flexibility in terms of their use." Tr. 603–05. Thus, while it may be that high-frequency and algorithmic traders "execute an outsized share of the total trading volume," *NetCoalition I*, 615 F.3d at 541 n.14, the Exchanges have not shown that any limited ability these traders may have to "affect order flow," *id.*, has constrained the Exchanges' depth-of-book data fees. To the contrary, the Exchanges have singled out these firms for their most significant price increases. The [redacted] anecdote proves the point: in the *one* instance the Exchanges cite in which one of

these firms shifted order flow in an attempt to exert leverage, what was the effect on Nasdaq's depth-of-book data fees? None—Nasdaq did not budge. Albers Tr. 640, 663; Evans Tr. 1201.

The Exchanges have no evidence that competition for order flow has led to lower depth-of-book data fees. NYSE Arca claims its "pricing strategy" is designed to discourage customers from sending order flow elsewhere, Br. 21–22 (citing Brooks Tr. 143), and Nasdaq claims it cannot "do what we want with our pricing" because its customers control order flow. Br. 21 (citing Albers Tr. 542). But NYSE Arca could not identify a single customer that shifted order flow because of market data prices, and Nasdaq identified only one. These objective facts belie the Exchanges' self-serving, subjective claims of pricing pressure. The Exchanges cannot carry their burden by putting their legal theory into the mouths of their fact witnesses. As the D.C. Circuit explained in rejecting a virtually identical argument in *NetCoalition I*, the "self-serving views of the [Exchanges] ... provide little support to establish that significant competitive forces affect their pricing decisions." 615 F.3d at 541; *see Helicopter Ass'n*, 722 F.3d at 435.

Finally, Nasdaq claims it adopted two fee caps in an effort to secure order flow. Br. 23–24 (citing [redacted]). But one of these caps affected only one customer, Evans ¶ 70; Albers Tr. 456, and the other only two, Ordover Tr. 756. Both were short-lived and were replaced by significantly higher fees. Evans ¶¶ 70, 74; Albers Tr. 636. Neither Nasdaq nor NYSE Arca produced any evidence that competition for order flow has put significant or sustained downward pressure on their depth-of-book data fees, let alone constrained them to price their depth-of-book data products at the competitive level.

3. The Exchanges cannot show that competition for order flow has led to competitively priced depth-of-book data, and in the end, that is not even their theory. Their real theory is that competition for order flow constrains, not the price of depth-of-book data on its own, but the

overall return they earn from transaction executions and depth-of-book data. *See NetCoalition I*, 615 F.3d at 542 n.16 (noting that the Commission in the ArcaBook Order did not embrace this "total platform" theory). Under this theory, they say, one exchange might choose to price market data relatively high and trade executions relatively low, and another might choose the opposite pricing strategy, but the aggregate return is constrained. Ordover Tr. 802 (agreeing that under his theory "Depth-of-Book data prices could be kept high" because "what matters is the aggregate return"); NYSE-1 at 153 (Professor Ordover explaining that some exchanges "may choose a strategy of ... setting relatively high prices for market information"); Hendershott & Nevo ¶ 55 ("exchanges must compete by keeping the overall cost of trading low").

This "total platform" theory fails for at least three reasons. *First*, it is inconsistent with the Exchange Act, which requires the *data prices themselves* to be "fair and reasonable" in order to protect investors and ensure that market data are widely disseminated. 15 U.S.C. § 78k-1(c)(1)(C) (requiring exclusive processors to provide *market data* "on fair and reasonable terms"); *see* Evans ¶¶ 14–18 (discussing the sound economic policies supporting Congress's decision to regulate market data prices to promote widespread dissemination of market data and price transparency). The Exchanges are arguing that they may set depth-of-book data prices that exceed competitive levels so long as they charge less for other services. But allowing the Exchanges to immunize supracompetitive data fees from review by wrapping them together with fees for other services would nullify the Exchange Act's "fair and reasonable" requirement.

Second, and in any event, the Exchanges have not shown that competition significantly constrains their overall return. Evans ¶ 26. They have presented only conclusory assertions from their economists that are not backed up by any data or evidence. *See* Ordover ¶ 59 ("competition among trading platforms is intense, and can be expected to constrain the aggregate return each

platform earns from its sale of joint products"). Neither Exchange, for example, presented any data showing the Exchange's overall revenues, costs, and profit margins, or any other evidence showing that the Exchange is not earning a supracompetitive return overall. Evans Tr. 1329. Indeed, Nasdaq touts that it has very large profit margins on trade executions as well as market data. Br. 40 (citing "operating margins for the trading business ... in the range of [redacted]").

Third, the "total platform" theory wrongly assumes that traders can readily switch orders to another "platform" in response to an increase in the price of market data, and thereby lower their overall trading costs. But as discussed above, there are significant regulatory and business limitations on traders' ability to shift order flow in response to market data prices, and directing orders to a different platform does not save the trader the costs of purchasing market data from the first platform if the trader needs to obtain that platform's market data to optimize trading decisions. And for those market participants who purchase only market data from a platform and no other services, there is no aggregate cost of using an exchange, just the cost of the data they purchase. Their only choice is to pay the increased data prices or stop buying the data entirely.[40]

III. Other Evidence Indicates A Lack Of Significant Competitive Constraints.

Additional evidence confirms that competitive forces do not significantly constrain the Exchanges' depth-of-book data fees. The Exchanges' depth-of-book data business is characterized by low costs, extraordinarily high profit margins, limited marketing or innovation, and high barriers to entry. Each belies the Exchanges' story—repeated in the courtroom but not in the marketplace—of robust competition. Instead, the evidence shows a strategy of

[40] NYSE Arca asserts that SIFMA "concedes that market data and trade execution are joint products." Br. 26 n.30. SIFMA concedes no such thing. Information regarding the limit orders pending on an exchange is a byproduct of trading and is an input into an exchange's depth-of-book data product. Evans ¶¶ 17, 79; Albers Tr. 390, 625. But regardless of how market data are characterized, the "total platform" theory fails for the reasons discussed above.

"harvesting" supracompetitive profits from customers who have little or no ability to exert competitive pressure on the Exchanges' depth-of-book data fees.

A. The Exchanges' costs and profit margins indicate significant market power.

1. Evidence of low costs and high profit margins bears directly on the question at issue: whether the Exchanges' pricing is subject to significant competitive constraints. Depth-of-book data prices greatly in excess of costs "may be evidence of 'monopoly,' or 'market,' power." *NetCoalition I*, 615 F.3d at 537. That is because "in a competitive market, the price of a product is supposed to approach its marginal cost." *Id.*; *see also id.* ("costs of collecting and distributing market data can indicate ... 'excessive profits' or subsidi[es]"). Concerns about a lack of competition "aris[e] when a [firm] can profitably set prices well above its costs" for a sustained period. Areeda § 501; *see Interstate Natural Gas Ass'n of Am. v. FERC*, 285 F.3d 18, 31–32 (D.C. Cir. 2002). The D.C. Circuit therefore expressly held that the "costs of collecting and distributing market data" are relevant to the competition analysis, *NetCoalition I*, 615 F.3d at 537, as the Chief ALJ recognized during the hearing. Tr. 379–80.

The Exchanges themselves have acknowledged the relevance of costs. NYSE Arca attempted to justify its fees based on their "equitable allocation of NYSE Arca's overall costs among users of its services." NYSE-1 at 8; *see NetCoalition I*, 615 F.3d at 538 ("Even NYSE Arca's proposal acknowledges that costs are relevant in assessing the reasonableness of its fees."). And Nasdaq has emailed its customers and posted on its website that a new Level 2 distributor fee—an increase of $30,000 per year for some—was introduced, in part, to "cover the increasing costs of maintaining the legacy Level 2 data feed." SIFMA-357; Albers Tr. 613.

2. Evidence of the Exchanges' low costs and high margins amply supports the conclusion that the Exchanges' pricing is not competitively constrained. Yet despite the D.C. Circuit's holding that costs are a relevant "indicator of competitiveness" under a market-based approach,

NetCoalition I, 615 F.3d at 539, neither Exchange made any effort to show that its prices are reasonably related to the costs of producing and distributing depth-of-book data.

To the contrary, Nasdaq has consistently achieved depth-of-book profit margins above [redacted]. SIFMA-142. This is an extremely high margin, Evans ¶ 78, even to Nasdaq's top executives. Shavel Tr. 1337 (characterizing 70% as a high profit margin). And this was not a temporary margin Nasdaq earned while other firms caught up with its technology or business model: since [redacted] it has consistently generated these margins. SIFMA-142. Nasdaq touts its high margins both privately and publicly, describing to investors that market data is a high-margin business, whose 70%–80% operating margin represents a "good chunk" of Nasdaq's annual revenue. Shavel Tr. 1337, 1383; *see also* SIFMA-317 (Information Services segment is "HIGH MARGIN"), SIFMA-319 (market data is Nasdaq's "largest operating profit contributor"). At the same time, Nasdaq executives have repeatedly told investors that the market data business does not "experienc[e] pricing pressure," SIFMA-283, and has "relatively strong pricing power." SIFMA-298 at 2; SIFMA-319 at 3; SIFMA-386 at 3; Shavel Tr. 1384–88. "NASDAQ's high profit margin and its executives' view that it has significant pricing power confirm that NASDAQ has significant market power over depth-of-book data." Evans ¶ 78.

NYSE Arca, by contrast, refused to produce any cost or margin data in this proceeding, claiming it does "not track costs that are solely attributable to the ArcaBook product." Brooks Tr. 47. NYSE Arca's claim that it does not track cost data contradicts its prior representations to the Commission that its "'market data revenues compare favorably to the markets' cost of producing the data.'" *NetCoalition I*, 615 F.3d at 538 (quoting NYSE-23 at 16). It is also at odds with the position of the Commission before the D.C. Circuit: counsel for the Commission stated he would be "stunned" if NYSE Arca could not ascertain its costs associated with ArcaBook: "whatever

[NYSE Arca's] increase[d] discrete cost is[,] they know that." NYSE-47 at 35. Because the Exchanges bear the burden of justifying their fees, the absence of these critical data alone requires NYSE Arca's fees to be set aside. *See* Prehearing Conf. Tr. 47 (Dec. 18, 2014) (exchange's burden is unmet if it "left a very strong element out of its proof"); *Motor Vehicle Mfrs. Ass'n v. State Farm Mut. Auto. Ins. Co.*, 463 U.S. 29, 43 (1983) (agencies must "examine the relevant data" and base decisions "'on a consideration of the relevant factors'"). At a minimum, NYSE Arca's stonewalling compels the inference that its costs and profit margins are similar to Nasdaq's. NYSE Arca has offered no evidence that its costs or profit margins differ significantly from Nasdaq's, and there is no reason to believe they would.

The Exchanges' margins are high in part because they spend so little to collect and distribute the data. The Exchanges do not themselves create the data; they simply aggregate information regarding the orders traders place, including data that broker-dealers are required by law to report to them for free. *See* 17 C.F.R. §§ 242.601(b), 242.602(b); Brooks Tr. 116. Other costs are low as well: as compared to [redacted] in 2014 revenue, SIFMA-142, Nasdaq spends only $2 million annually for research and development and $1 million annually on advertising and marketing for depth-of-book data and 90 other data products. Albers Tr. 391–92, 419, 587, 622. The limited investment required to serve this "[redacted]" customer base may be inferred from NYSE Arca's decision, until 2009, to give away this data for free to anyone who wanted it. Brooks Tr. 90–92, 150; Nevo Tr. 339. Little wonder that the Exchanges' executives view this as a "fabulous" business model. SIFMA-242 at 21–22 (CEO of NYSE Arca's parent company contrasting market data business with the "highly competitive" trading business).

3. The Exchanges' own witnesses confirmed that they do not price their depth-of-book data products in relation to cost, as suppliers in a competitive market would be compelled to do.

See NetCoalition I, 615 F.3d at 537 (a seller in a competitive market "'makes only a normal return on its investment.'"). Instead, they set their prices based on their perception of the "value" the products provide to the customers. Brooks Tr. 44, 65; Albers Tr. 535, 585, 669. This is exactly how a company with market power sets its fees—base on "value," not competition. *See United States v. Am. Express Co.*, No. 10-4496, 2015 WL 728563, at *41, 53 (E.D.N.Y. Feb. 19, 2015) ("value-based methodology" pricing used to "alig[n] .... prices with the value [defendant] perceived as being delivered" to customers was consistent with monopolistic behavior).

As Mr. Albers explained, Nasdaq employs a "harvest strategy" and imposes "naked price increases" by "increas[ing] price where [the company] felt people weren't paying commensurate with the value they were getting out of the data." Tr. 585–87; NQ-526. When Nasdaq identifies a use that its customers are making of the data, it creates an additional fee to charge for that use. Albers Tr. 589, 594. Nasdaq does not provide any additional content with these higher or new fees; it simply identifies value derived by customers, and then increases its pricing to capture as much of that value as possible. *Id.* at 593–94, 604; NQ-527. NYSE Arca's pricing approach is no different: "We try to price so we're effectively and fairly charging for the value that the data recipients get out of the data." Brooks Tr. 65; *see id.* at 43–44.

As a prime example of this "harvesting strategy," the Exchanges have imposed nondisplay fees to extract more revenues from algorithmic traders by charging separately for computer-based uses of the data. *See supra*, 28, 44–45. Nasdaq's 2012 nondisplay fee increased Nasdaq's revenue by [redacted] per year, while providing customers with nothing they were not already receiving. Albers Tr. 602; *see also id.* at 496 (asking "what's the value of the data they're getting, and is the price commensurate with the value of the deal"). And there is no evidence that Nasdaq incurred additional costs to serve these users. It simply raised the price.

4. Faced with this damning evidence, the Exchanges take the extreme and indefensible position that their costs and profit margins have no relevance at all to whether their fees are competitively constrained. NYSE Br. 37–38; Nasdaq Br. 37–42. This position is flatly contrary to the D.C. Circuit's holding in *NetCoalition I* that cost is relevant to the competition analysis. 615 F.3d at 537. The Exchanges' economists *concede* their opinions conflict with the D.C. Circuit's controlling statement of law, which they attempt to dismiss as "misguided," Hendershott & Nevo ¶ 93, and "wrong." Ordover ¶ 51. But the Exchanges' economists cannot overrule the "controlling statement of the law" in this hearing. *NetCoalition II,* 715 F.3d at 354.

Moreover, contrary to the Exchanges' claims, there is no basis to assume the D.C. Circuit was using an outdated or unrealistic conception of marginal cost under which the Exchanges could not earn a normal rate of return. As the Chief ALJ noted, "the decision by the court of appeals was 2010." Tr. 380. Marginal cost need not be defined in the narrow sense urged by the Exchanges' economists, but rather can include a "normal competitive rate of return [that] reflects the risk-adjusted opportunity cost of capital." Evans ¶ 77 n.90; *see* Evans Tr. 1172–73; Ordover Tr. 728–29; Areeda §§ 501, 504. And while cost and margin data may need to be treated with care, the Exchanges have provided no reason to completely ignore a relevant factor that is regularly considered by courts, competition authorities, and economists (including Dr. Nevo himself) in assessing market power. *See Tejas Power Corp. v. FERC*, 908 F.2d 998, 1004 (D.C. Cir. 1990); Areeda § 501; Evans Tr. 1328–29 (explaining that the Department of Justice and the Federal Trade Commission usually consider cost data in their investigations).

5. Both Exchanges further claim that their profit margins are irrelevant because they are merely "accounting margins." Nasdaq Br. 47; NYSE Br. 37. Their profit margins, they say, could be "wiped out" by reassigning a portion of the "maker" rebates from the trading business

to the data business. Nasdaq Br. 40–41; NYSE Br. 23. This argument is contrary to both the Exchanges' long-established practice, reflected in their SEC filings, of recording the rebates as a cost of the transaction business, and to the Exchange Act, which does not permit the Exchanges to recover the costs of operating their trading platforms through their market data fees.

In practice, the Exchanges have always treated the rebate payments exclusively as a cost of the trading business. Shavel Tr. 1338, 1340, 1376. This makes sense because the rebate is paid only if the "maker's" order executes, not simply because the order is posted in the order book. Brooks Tr. 32; Donefer Tr. 1030–31. Moreover, the rebate is only half of the equation—the other half is the execution fee charged to the "taker," which exceeds the amount of the rebate, allowing the Exchanges to make a profit on trade executions. Brooks Tr. 32, 106; Albers Tr. 431; Shavel Tr. 1371. Shavel admitted that rebates are "fundamentally related to driving trading activity, not to producing market data." Shavel Tr. 1371; *see* NYSE Br. 23 (NYSE Arca pays rebates because "displayable orders attract liquidity takers and result in trade executions"). Accordingly, Nasdaq has appropriately classified the rebates in its SEC filings and to the investing public as expenses of its trading business. Shavel Tr. 1369. Nasdaq's own CFO admitted that he has never "said or suggested publicly or anywhere that these expenses are related to [the] market data business." *Id.* at 1375. Nor had he even seen any [redacted]. *Id.* at 1372.[41]

In any event, it would be inconsistent with the Exchange Act to allocate an exchange's cost of its trade execution business to its market data business. Congress mandated that market data be priced fairly and reasonably to ensure that this critical information is widely

[41] Nasdaq's restructuring of its reporting units in 2013—when Nasdaq segregated the trading and market data businesses into separate reporting units—further confirms this view. One hundred percent of the rebates were attributed as costs of trading. Shavel Tr. 1366–70; SIFMA-291 at 4 (10-K); SIFMA-349 at 356 (10-Q). Nasdaq must record rebates as transaction costs because that is how its decisionmakers view the financial data. ASC 280 (segment reporting guidance).

disseminated. Congress clearly did not envision that exchanges could become "data shop[s]," Ordover Tr. 737, that use their market data fees to recover the costs of operating the exchange. This makes sound economic sense, given that market data is merely a byproduct of trading activity. Evans ¶ 79; *see* Albers Tr. 625. It is also the view adopted by the D.C. Circuit when it held that the cost of "*collecting and distributing market data*," not the cost of attracting traders or executing orders, is the relevant measure of cost. *I*, 615 F.3d at 537 (emphasis added).

6. Finally, the Exchanges' complaints about cost-based regulation are beside the point. NYSE Br. 37–38; Nasdaq Br. 40–44. The issue in this hearing is whether the Exchanges' fees are subject to significant competitive constraints. If they are not—and the record overwhelmingly shows they are not—then the fees cannot be sustained under the "market-based" approach, regardless of what alternative form of regulation the Commission may adopt to ensure the fees comply with the Exchange Act. In effect, the Exchanges are arguing that they should be allowed to charge supracompetitive market data fees simply because the alternative may be cost-based regulation. *Cf. NetCoalition I*, 615 F.3d at 538. But "'it obviously would be inappropriate for the Commission to rely on non-existent competitive forces as a basis for approving an exchange proposal.'" *Id.* (quoting 73 Fed. Reg. at 74787). And as the D.C. Circuit held, "an agency may not shirk a statutory responsibility simply because it may be difficult." *Id.* at 525.[42]

B. The Exchanges' limited marketing reflects significant market power.

The Exchanges contend that "abundant" marketing of their depth-of-book data products indicates "robust competition." Nasdaq Br. 33; *see also* NYSE Br. 18. To the contrary, the record contains very little evidence of marketing, further confirming the absence of competition.

[42] Contrary to Nasdaq's claim, there is no reason to believe the Commission will need to "hold individual trials" for every new fee. Br. 43. Once the Commission has established the proper framework for substantiating fees, the Exchanges can adjust their rule filings accordingly to provide the necessary information, rather than relying on conclusory assertions of competition.

NYSE Arca's head of proprietary market data described marketing efforts that are anything but "robust." NYSE Arca's "[redacted]." Brooks Tr. 150. It has not updated its marketing materials for ArcaBook since 2006, when it was free. *Id.* at 125–28. Mr. Brooks could not even identify [redacted]. *Id.* at 63–64. On his "sales calls" he does not bother to "[redacted]." *Id.* at 121, 156–57 ("[redacted]."). And he was unaware of [redacted]. *Id.* at 137–38.

Nasdaq's head of market data, Mr. Albers, similarly could identify only three customers who switched from TotalView to ArcaBook during a ten-year period. Tr. 565–66. This included years when ArcaBook was free. *Id.* at 566. And Mr. Albers could not recall a single customer his team lured away from ArcaBook to TotalView. *Id.* at 565–66. Nasdaq's marketing material for TotalView has not changed in content or format for at least six years—simply regurgitating the same features year after year. *Id.* at 623–24. Mr. Albers admitted he does not match other exchanges' prices. *Id.* at 571–72. And he employs a team of only seven U.S. sales employees who market and sell over 90 data products and handle 350,000 users. *Id.* at 409, 587, 660.

This evidence is consistent with the Exchanges' limited need to market depth-of-book products. For the most part, the products sell themselves: Nasdaq has *conceded* that roughly 100 of its largest customers have no choice but to purchase its depth-of-book data. Nasdaq Br. 2; Shavel Tr. 1347. This captive customer base is responsible for the vast majority of Nasdaq's $92 million in annual depth-of-book product revenues. *See* SIFMA-133 at 11, 14 ([redacted] customers represent over [redacted] of revenue); Albers Tr. 400, 478. There is no evidence that these customers

require any marketing whatsoever; to the contrary, these customers repeatedly face, and accept, "naked price increases." *Id.* at 598–604; SIFMA-132 at 5.

C. Asserted "innovation" does not show a lack of significant market power.

The Exchanges' claims of "a competitive 'arms race'" of "intense innovation" are similarly belied by the record. Nasdaq Br. 33. NYSE Arca presented no evidence of any "innovations" in ArcaBook. And Mr. Albers could not identify any significant innovations to the fundamental aspects of Nasdaq's depth-of-book products, apart from improved speed, since 2004. Tr. 620–23. Mr. Albers insisted that since 2006 Nasdaq has "done a lot of different things" to innovate—"too many to name." *Id.* at 488. But he described only one: allowing customers to choose the telecommunications provider they use to connect to the data center—which does not change the market data product itself at all. *Id.* at 622–23. Professor Ordover's report likewise trumpets innovation, but describes none. Ordover ¶ 16. And he admitted at the hearing that he had "not investigat[ed]" the subject "that deeply." Tr. 706.

Even if the Exchanges had shown significant innovation, it would prove nothing. It is undisputed that "even firms with monopoly power have incentives to innovate in order to increase demand and profits." Evans ¶ 52 & n.63; *see United States v. Microsoft Corp.*, 84 F. Supp. 2d 9, 26 (D.D.C. 1999); Evans Tr. 1117–18; Ordover Tr. 689 ("I do not contest the proposition that even found monopolists can innovate."). Thus, innovation "doesn't get at the issue of whether there [are] significant competitive forces." Evans Tr. 1117.

D. Entry does not prevent the Exchanges' exercise of significant market power.

The Exchanges have not shown "a lack of significant barriers to entry ... [for] new data products." Nasdaq Br. 32. Their experts undertook no serious analysis of entry barriers. Ordover ¶¶ 8, 59; Hendershott & Nevo ¶¶ 50–52. Rather, their conclusory assertions focused on the Exchanges' loss of market share in trade execution—not depth-of-book data. *Id.* But the two

markets are quite different: despite the entry of many new trading venues over the past decade (largely ATSs), only one new provider of depth-of-book data has emerged (BATS). This increased the number of providers from two to three, and the market remains quite concentrated. Evans Tr. 1087. Indeed, the Exchanges' loss of trading volume stands in stark contrast to the almost complete absence of depth-of-book customers lost to new entrants. *See supra*, Part I.[43]

The Exchanges' contrary assertion that barriers are low is based almost entirely on the "increase in over-the-counter trading" and "dark pools." Ordover Tr. 746; *see* Ordover ¶¶ 8, 59; Hendershott & Nevo ¶¶ 50–51. These are the trading venues that have eroded the Exchanges' market share in trade execution, Ordover Tr. 677–78, and for which barriers to entry are low. *Id.* at 747 (referring to "barriers to entry *or expansion*," based on belief that "potential barriers to setting up a *dark pool* are actually quite low") (emphases added). But barriers to entry for becoming an ATS are irrelevant, because ATSs do not provide depth-of-book data. *Contra* Ordover Tr. 746–47 ("[I]f you trade, you will generate Depth-of-Book…."). Nasdaq speculates they might start to. Br. 33. But there is no evidence this would be viable; the whole point of a "dark pool" is that its orders are hidden. Albers Tr. 480. There is no evidence that ATSs compete or will compete with the Exchanges in providing depth-of-book data. Donefer ¶ 17 n.3.[44]

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[43] Even the Justice Department, whose allegations the Exchanges elsewhere embrace, concluded that barriers to entry in real-time proprietary data are "formidable," with competition "largely limited to registered securities exchanges." NQ-611 ¶ 36.

[44] The fact that SIFMA members run ATSs that compete with the Exchanges for order flow, Hendershott & Nevo ¶¶ 28(e), 51; Ordover ¶¶ 11, 47, says nothing about whether the Exchanges have significant market power over their depth-of-book data fees. Evans Tr. 1312. If anything, the Exchanges' control over the price of an input into the businesses against which they compete for order flow is a further reason to scrutinize their fees. Likewise irrelevant is the fact that SIFMA members—whose fees are actually constrained by competition—are able to generate revenue by redistributing data, adding value to the data, or simply utilizing the data in their own businesses. *Id.*; *cf.* Brooks Tr. 120 (Bloomberg charges $1 compared to NYSE Arca's $40).

Regardless, even if it were possible that a new supplier of depth-of-book data might enter the market, "the SEC's duty is to ensure that fees are 'fair and reasonable'—not to predict that, with the entry of a competitor, they might someday get there." *NetCoalition I*, 615 F.3d at 543.

IV. The Exchanges' Depth-of-Book Data Fees Are Inconsistent With The Exchange Act's Purpose And The Public Interest.

The Exchanges' own evidence also shows that their fees are inconsistent with the purposes of the Exchange Act. The record thus provides a "substantial countervailing basis" for disapproving the fees, regardless of competition. 73 Fed. Reg. at 74781. The Exchanges' fees undermine the Exchange Act's purpose of ensuring the wide availability of market data in order to promote the fairness, efficiency, and transparency of financial markets. *See* 15 U.S.C. § 78k-1(a)(1)(C)(iii); S. Rep. No. 94-75, at 3 (one of the "basic goals of the Exchange Act" is "to assure that dealing in securities is fair and without undue preferences or advantages among investors"); 64 Fed. Reg. at 70614 ("broad access to real-time market information should be an affordable option for most retail investors, as it long has been for professional investors").

The Exchanges' own evidence shows their high prices cause retail brokers to limit the depth-of-book data products they make available to their customers. While retail brokerage firms may purchase [redacted] depth-of-book products for professional use, they "must ration the market data products" for their retail customers, Donefer ¶ 62, by purchasing [redacted] for nonprofessional use. NYSE-87, -88; *see* Brooks Tr. 51–54; Hendershott Tr. 182–86; Nevo Tr. 351; Albers Tr. 570. This puts retail investors at an informational disadvantage compared to institutional investors, high-frequency traders, and others who can afford to buy multiple depth-of-book products. *See* Donefer Tr. 1056. The Exchanges' decision to set prices beyond the reach of so many investors is squarely at odds with the Exchange Act's purpose of protecting investors and ensuring price transparency for *all* market participants.

The Exchanges' only answer is to assert that retail investors do not need depth-of-book data because most orders execute at the NBBO. Hendershott & Nevo ¶ 29. But that is not a relevant statistic for evaluating the importance of depth-of-book data. Donefer ¶ 63. Whether an order executes at the NBBO says nothing about whether the trader used depth-of-book data. Hendershott Tr. 232; Brooks Tr. 124–25. Even if most orders are *executed* at the NBBO, the order size often is larger than the number of shares available at the NBBO *at the time the order is placed.* Donefer ¶ 63. Indeed, according to one study, over one-third of retail orders required more shares than were available at the NBBO when submitted. SIFMA-35 at App. 20, 47. Thus, depth-of-book data are needed to know the prices at which many retail orders will be executed; they also are important in deciding whether and when to trade, at what price, and what type of order to use. Donefer ¶ 62; Donefer Tr. 925–26; Albers Tr. 608–11.

Moreover, high depth-of-book data fees paid by broker-dealers increase overall trading costs for ordinary investors. Almost all those who "have investments for ... retirement[,] to send children to school[, or] save to buy a house" use "mutual funds," "exchange traded funds," and "managers" to achieve a good return. Donefer Tr. 999–1000. The institutions that invest these funds use depth-of-book data and inevitably pass on the fees to investors, diminishing their returns. *Id.* at 1002. Thus, "lowering the cost to the institutions will lower the costs of trading and will increase the returns of the investments to all of the people who put their money in to live on when they retire or send their kids to school or whatever they're saving for." *Id.* at 1001.

Lower depth-of-book data fees would also lead to wider dissemination of data, more transparency, greater efficiency, and a more even playing field. *See* Evans ¶¶ 14–17, 79. As the Exchanges recognize, their products "enhanc[e] market transparency and provid[e] consumers with a complete liquidity picture" across the market. SIFMA-159. Restricting the availability of

depth-of-book data through high prices, thereby advantaging certain traders over others, directly undermines the Exchange Act's investor protection and transparency objectives.

The Exchanges claim that lowering depth-of-book data fees would force them to increase their transaction fees and thereby drive trading to "unlit" ATSs. NYSE Br. 44–45; Nasdaq Br. 45. The Exchanges produced no evidence to support this theory, which is in tension with their principal argument that lower depth-of-book fees *increase* order flow. The Exchanges' theory is simply an offshoot of their unproven assertion that their overall return from trade executions and depth-of-book data is competitively constrained. *See supra*, 45–47. The Exchanges produced no evidence that lowering their depth-of-book data fees would require them to increase trade execution fees in order to maintain a competitive rate of return, as opposed to simply eliminating the supracompetitive return they are currently earning from the data.[45]

CONCLUSION

The Exchanges did not carry their burden of proving that their depth-of-book data fees are constrained by significant competitive forces. To the contrary, the record overwhelmingly shows that the Exchanges have significant market power, which they exploit to the detriment of investors, the financial markets, and the public interest. As in *NetCoalition I*, the record discloses neither a reasoned basis nor substantial evidence for finding that the Exchanges' fees are significantly constrained by competition or are otherwise "fair and reasonable." *See* 615 F.3d at 528, 532, 544. Accordingly, the fees must be set aside as inconsistent with the Exchange Act.

[45] In any event, ATSs remain subject to SEC regulation, and once an ATS accounts for more than 5% of trading volume in a security, its trading automatically becomes displayed. Nevo Tr. 328 (citing NYSE-8). The Exchanges' speculation provides no defense for high prices that currently limit the widespread dissemination of market data.

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UNITED STATES OF AMERICA
before the
SECURITIES AND EXCHANGE COMMISSION

In The Matter of the Application of: SECURITIES INDUSTRY AND FINANCIAL MARKETS ASSOCIATION for Review of Actions Taken by Self-Regulatory Organizations.	Admin. Proc. File No. 3-15350 The Honorable Brenda P. Murray, Chief Administrative Law Judge

CERTIFICATE OF SERVICE

I hereby certify that on July 22, 2015, I caused a redacted, public copy of the foregoing Post-Hearing Brief of Applicant Securities Industry and Financial Markets Association to be served on the parties listed below via FedEx:

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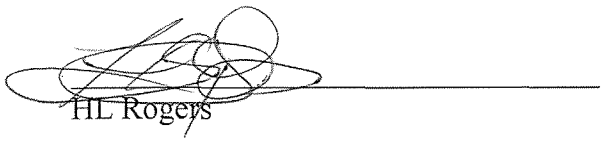

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